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THE MAGAZINE FOR INFORMATION EXECUTIVES

SEPTEMBER 1, 1994

VOLUME SEVEN NUMBER TWENTY

SEVEN DOLLARS

COVER STORY

Hire Authority

*A New Gallup Network
Helps Clients Build
Better Career Paths*

ALSO INSIDE

**Second Opinions:
How To Manage IT Investment
In A Decentralized Company**

AN INTERNATIONAL DATA GROUP PUBLICATION

The Gallup Organization's
Craig Nordbrock



P u t t i n g T e c h n o l o g y

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CIO

VOLUME 7, NUMBER 20



The match game 46
Cover photo by Marc Berlow

COVER STORY

CLIENT/SERVER

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A Hire Power

The success of Gallup's selection and development practice depends on its ability to quickly and accurately tap years of expertise. A new strategic system and a client/server environment provide the means. *By Megan Santosus*

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SECOND OPINIONS: MANAGING I.T. ASSETS

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Remote Control

When a company decentralizes, IS must decide how to allocate control of its technology assets. End users in the field demand some, but giving them too much can threaten the integrity of the IT infrastructure. Here, one IS executive gets advice on finding the delicate balance that satisfies both sides. *By Carol Hildebrand*



Sharing the wealth
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Low Anxiety

Ceding control of any part of your systems will never be risk-free, but companies that take tight control of the process can stack the odds in their favor. *By Mickey Williamson*

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INTERVIEW: MARGARET J. WHEATLEY

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Organic Restructuring

Recreating the enterprise does not have to be a violent act. Author Margaret J. Wheatley believes that organizations are dynamic entities that need free-flowing information to thrive. Reengineering, she says, misses the point. *By Leigh Buchanan*

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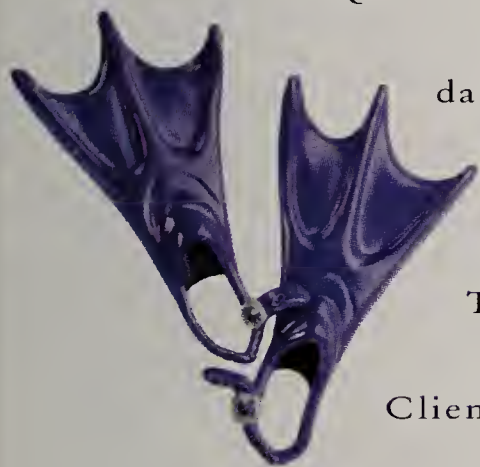
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INSIGHTS: AN INFORMATION MANIFESTO

The old, systems-based model of technology development badly serves the modern organization and should be quickly done away with. In its place, CIOs should adopt a manufacturing model whose goal is the development of a flexible catalog of information products. *By Paul Rostick*



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STATE OF THE ART: CAUTIONARY NOTES

Lotus Notes is on everyone's lips and many companies' buy lists, but the golden rule of IT management still prevails: Look carefully before you leap. *By Tracy Mayor*

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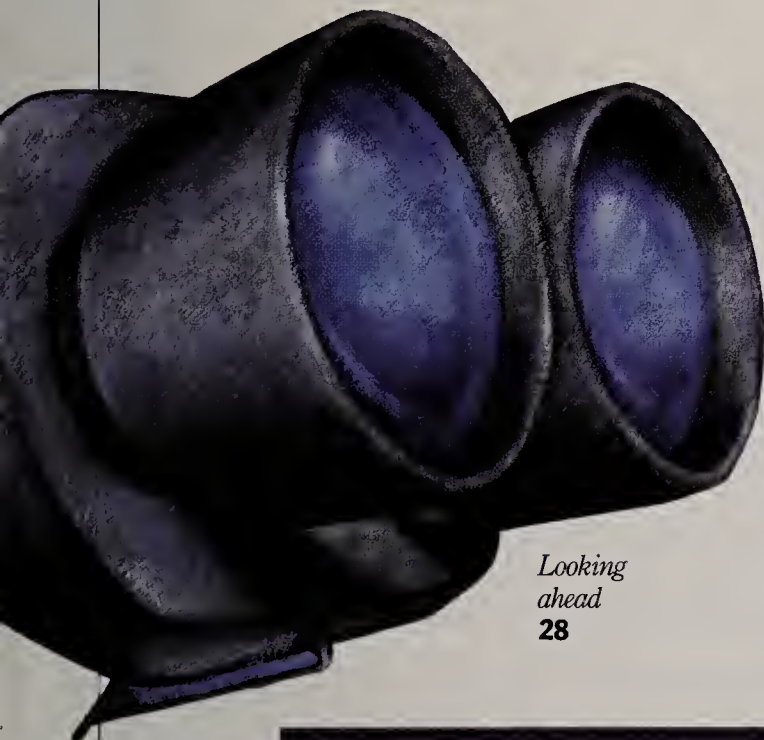


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NOTEBOOK: THE VISION THING

Increasingly, companies are using vision statements to explain who they are, where they're going, and why customers and employees should follow them there. *By Anne Stuart*



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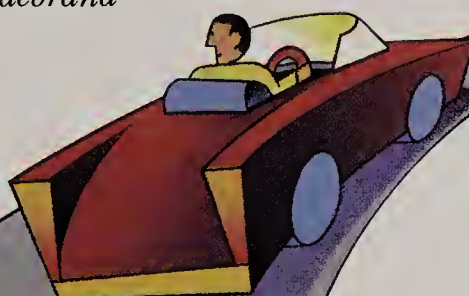
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Monthly financial closes were a protracted nightmare at this wireless-communications company. Consolidating the reporting function and standardizing processes among divisions has turned that around. *By Carol Hildebrand*

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The pages of *CIO* reflect the climate of seemingly constant change surrounding information systems. Since the magazine's debut in 1987, our editorial group has consistently reported on information management's impact on the organization. Looking at our feature articles in this issue, it is amazing to note that outsourcing, client/server technology and the concept of empowering the people in an organization were barely whispers seven years ago.

Our cover story, by Senior Writer Megan Santosus, on The Gallup Organization's move to client/server technology explains how this firm has compiled and made use of information in a way that creates a lucrative and innovative business opportunity. (Please see "A Hire Power," beginning on Page 46.)

Contributing Writer Mickey Williamson reports on the various ways in which IS executives are managing outsourcing risk. Far from running scared, CIOs are becoming tough negotiators. "Low Anxiety" begins on Page 56.

In our Second Opinions article, an IS executive facing decentralization gets some expert advice about finding the right balance between giving dispersed users some control over IS resources and protecting the integrity of the information infrastructure. "Remote Control," which begins on Page 32, offers further proof that IS executives deserve their growing reputation for management sophistication.

Last month, our New World Order CIO-100 focused on organizations at the leading edge of innovative management processes. Our interview with management guru Margaret Wheatley on Page 66 continues that train of thought. She exhorts those in IT to consider information a resource we cannot live without and asserts that access to it should be a product for the masses.

During the past few years, *CIO*'s editorial team has evolved from five people to 20. We've increased our frequency from once a month to 21 times a year. Our readers are a loyal group, looking for provocative thoughts and innovative direction in the dynamic world of information systems.

The mission of our magazine continues to be the same: to report on the ever-evolving mix of trends in technologies, management issues and strategic applications in a voice that IS and, increasingly, general management understand.

Marcia Blumenthal



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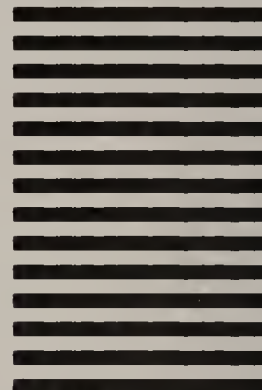
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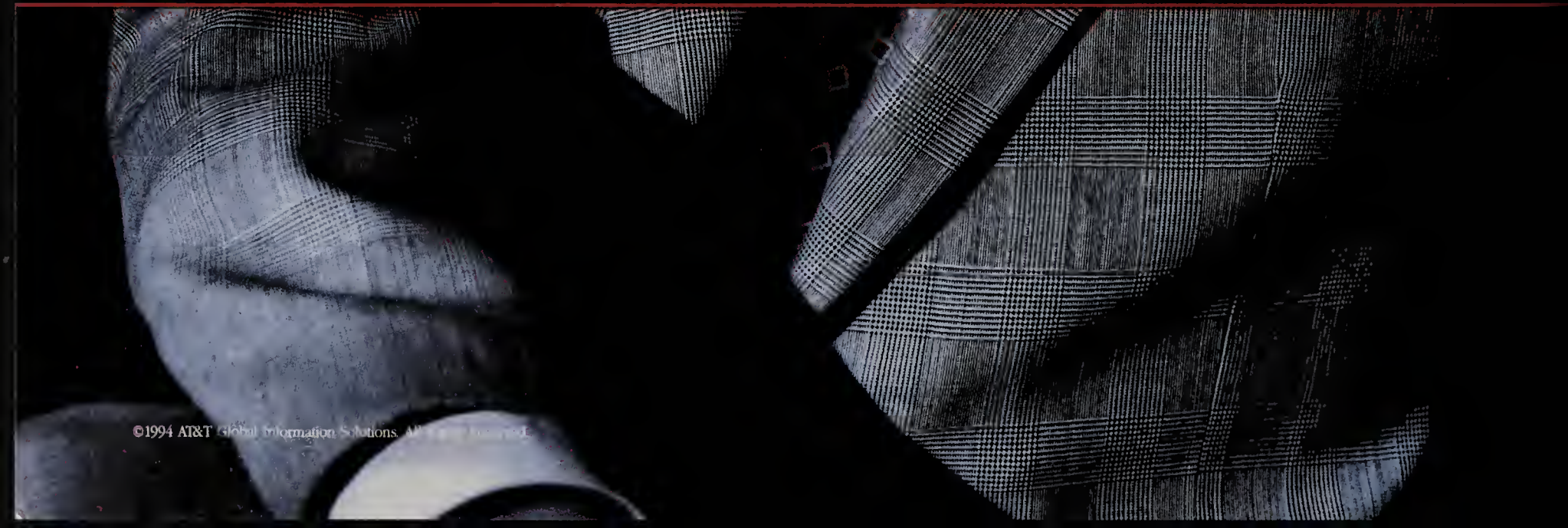


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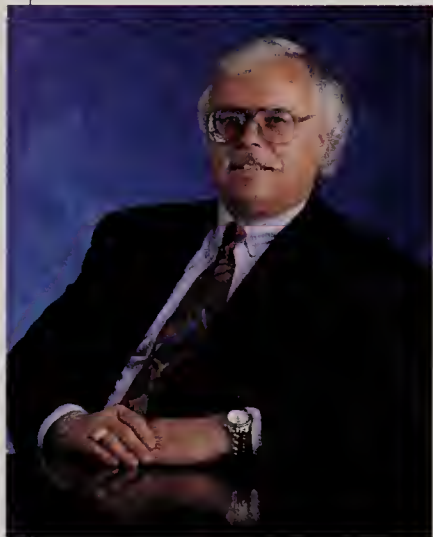
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Every time September comes around, I get nostalgic. In September 1987, we launched *CIO Magazine* and CIO Publishing Inc. was born.

What has happened since then has been remarkable. The position of the chief information officer has become a regular fixture not only in the corporate arena but in government agencies and nonprofit organizations as well. An enterprisewide strategy for information technology, which was unheard of in the early '80s, is the mandate for all CIOs today. In just seven years, the evolution of the CIO as an integral part of the

management team has surpassed even my original vision.

In keeping with this evolving trend, you may have noticed a slight change to our corporate name. We have redubbed ourselves CIO Communications Inc. to reflect our growing commitment to providing even more information and services to IS executives and their business partners. The reason? CIO Communications wants to become your No. 1 information source to help you do your job more effectively and enhance your career opportunities. In addition to receiving our core product, *CIO Magazine*, you can also attend our biannual CIO Perspectives conferences, the ROI*Executive Retreat and the CIO European Symposium (which will debut in June 1995). In the past year, CIO Communications has also teamed with CNBC's weekly program, *Technology Edge*, which has featured Marcia Blumenthal, *CIO's* editor in chief, as a guest commentator.

CIO Communications will continue to explore innovative methods for providing the kind of information you need. Thank you for your support these past seven years and for your continuing support today.

Wayne L. Wertz

P.S. Mark your calendar for the October 1994 Perspectives conference. Jim Wetherbe will act as "master of ceremonies" as we explore "IT Economics: Business Value & Profit Maximization." The conference will take place Oct. 23-26 at La Paloma in Tucson, Ariz. Please call our toll-free conference hot line at 800 366-0246.

Coming In CIO

Stop the Presses!

Futurists and publishers agree on one thing: The publishing industry is rocketing toward a technological revolution as profound as the invention of the printing press 550 years ago. But they have widely disparate views of exactly what shape those changes will take. Meanwhile, industrywide, managers are gearing up for changes in everything from job titles to revenue sources to how they gather and package the day's news.

Reengineering Done Right

Though IBM Canada Ltd. hit the financial skids a bit later than its parent corporation, it has not completely dodged industry fallout. The financial horizon has yet to clear, but the Canadian subsidiary has garnered praise for leveraging leading-edge management techniques. *CIO* reports on the company's reengineering effort, mandated by the dissatisfaction of internal users and the downsizing pressures of a volatile industry.

IS in Japan

The concept of a chief information officer doesn't really exist in corporate Japan. With their consensus-driven society and corporate cultures, Japanese executives say it would be difficult to charge one person with the varied duties of a CIO. But many have begun experimenting with American information-management systems and methods. Just how well they implement new technology and systems will be a significant factor in their international competitiveness.

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TRENDLINES

TRACKING SYSTEMS

ON THE BUTTON

When most companies look for a system to automate their payrolls, there's usually no mention of fruit in their list of requirements. But for Jeannie Lopez, the technology's ability to endure strawberry juice—not to mention rain, mud and 105-degree temperatures—was critical.

Lopez, who manages the information systems for Ue-

timecards from the day before.

Today, laborers wear a small semiconductor encased in a durable stainless-steel button that attaches to their clothes. After each flat of strawberries is picked, the field foreman touches the laborer's button with a wand reader. The wand, which is based on technology much like that in a bar-code scanner, records the worker's name and registers the work done. At the end of each day, all the information in the wand is transferred to the office's 386-based PC. At the end of the week, payroll checks take just two hours to print.

Lopez invested \$10,000 in the system, which she figures will pay for itself within a year. The systems integrator was Agricultural Data Systems in Laguna Niguel, Calif. As of mid-1994, the integrator had introduced the technology to 40 farms with over 35,000 laborers in California and Florida, according to co-founder Carl Gennaro.

The underlying computer-on-a-chip comes from Dallas Semiconductor Corp.

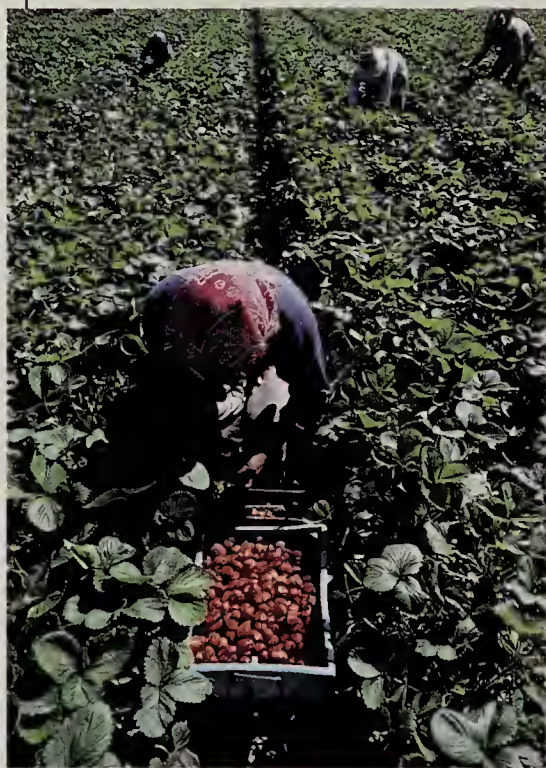
The technology is

particularly well-suited to environments such as agriculture, where bar-code technology has proven too delicate, but applications span a very broad range. For example, attendees at the North American Materials Handling trade show were given badges that included

the chip. To request more information at a vendor's booth, they could simply touch their badge to a reader, and information that had been encoded onto it—including their name, address and phone number—would be recorded. By the end of the show, the vendor had a database of genuine

prospects to whom it could send additional materials.

Another user is the U.S. Postal Service, which is testing the technology in selected areas by installing the buttons on mailboxes. Postal carriers touch a reader to each box they service, and the system alerts them if they have missed one. Other



sugi Farms in Morgan Hill, Calif., used to rely on old-fashioned punch cards to track the earnings of the farm's 500 piece-rate berry pickers. But the cards got muddy and juice-laden from handling, crumbled easily and took one person four to six hours a day to process

GOODS FOR THE GOOD

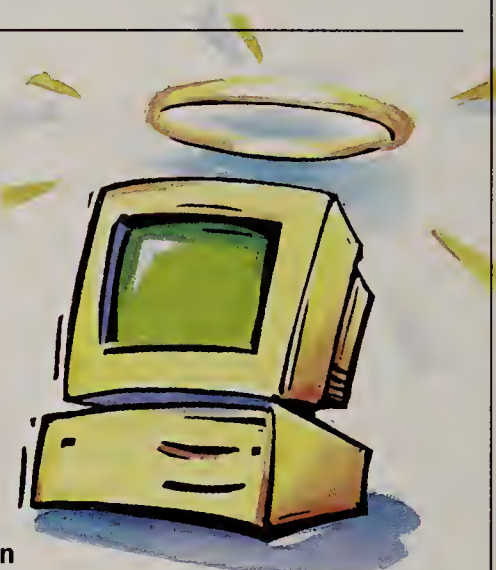
Virtue may be its own reward, but for those who want more, there's now some external motivation to do the right thing. Symantec Corp. will give free copies of The Norton

Utilities 8.0 and The Norton AntiVirus 3.0 to operators of bulletin-board systems who post a code of ethics. The giveaway is in support of the National Computer Ethics and Responsibilities Campaign (NCERC), an effort to promote ethical computing and information practices.

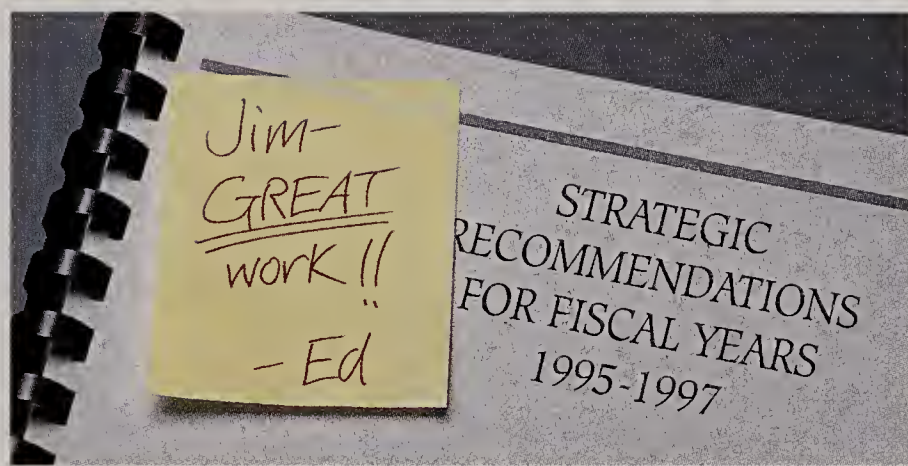
"As a society, we don't yet have a gut feeling for what's right or wrong in terms of using computers," explains Peter Tippet, the director of security and enterprise products at Symantec. "We need to educate users to exercise good judgment and think about the consequences of their actions."

A dozen ready-made codes of ethics are currently available on the NCERC CompuServe Forum (GO CIS:CETHICS) or on the Software Creations Bulletin Board (508 368-7139).

To qualify for the free software, operators must display the ethics statement prominently on their bulletin boards for at least four months. The software will be sent to the first 500 who respond by Sept. 30. Requests can be made by sending E-mail to ptippett@symantec.com.



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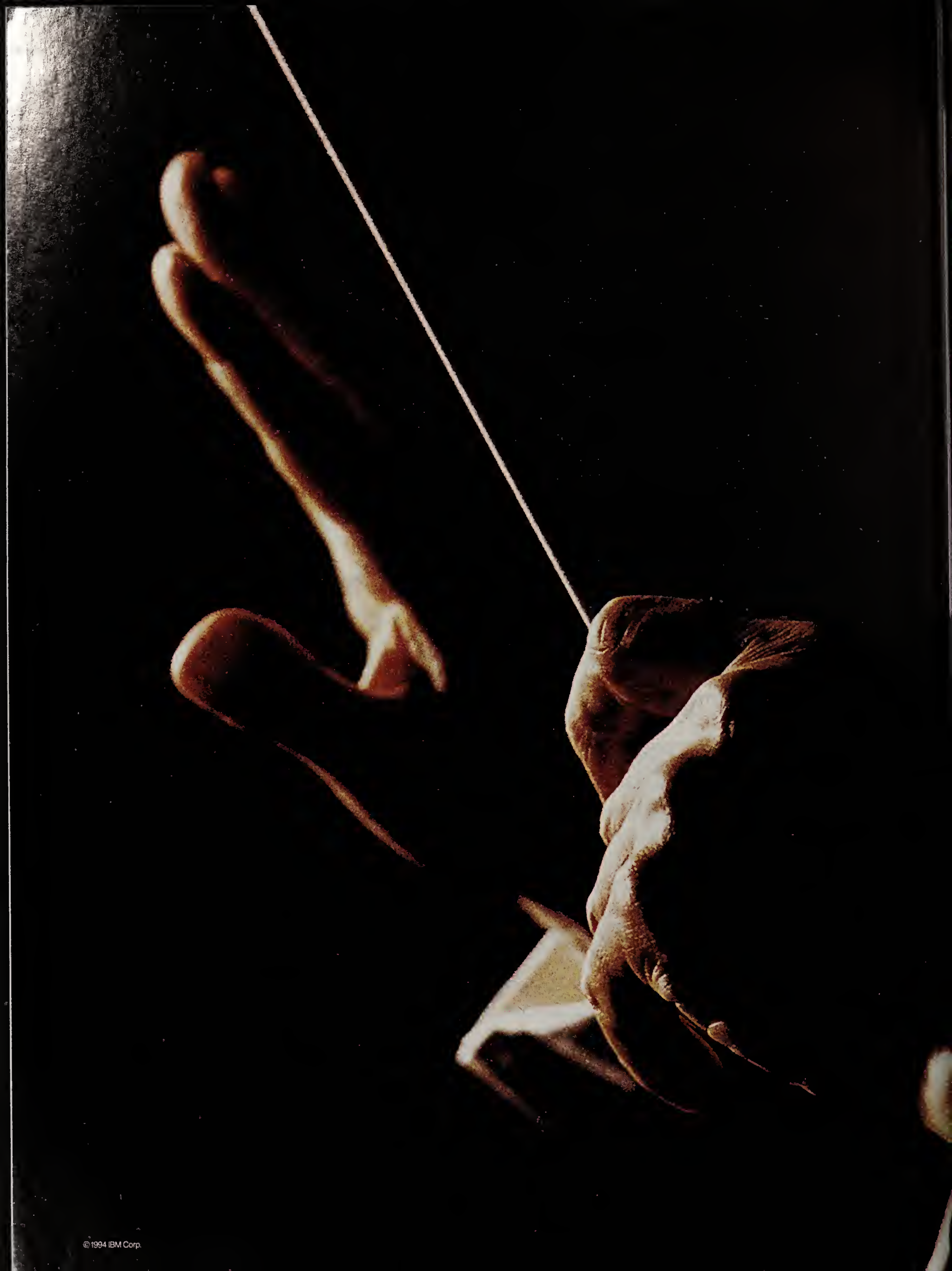


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TRENDLINES

users include Ryder System Inc., which is putting the chips on its trucks to record mileage and keep maintenance records; some grocery-store distributors, which plan to use the buttons next year to record the temperature of their produce throughout the delivery process; and law-enforcement officials in Ohio, lumberers in Chile, bankers in Russia and trash collectors in France.

For more information, call Dallas Semiconductor at 214 450-0448. ■

SHARED EXPERIENCES

As children, we were all taught to share, but it's one of those things that don't always come easily—especially if you're an application developer.

According to a Forrester Research Inc. study of 50 Fortune 1000 IS managers, only 40 percent of developers share the majority of their application-development information. And those who do share depend on informal sharing techniques: Verbal communication is the primary means at 48 percent of the companies surveyed, whereas 28 percent use CASE tools and 16 percent use repository tools.

"Developers don't see enough benefit from sharing," says Bobby Cameron, senior analyst at Forrester's Software Strategy Service. "They're already overworked and resist the extra effort required to populate repositories and data dictionaries."

Forrester predicts that over the next three years, decentralized client/server development and global competition will combine to

A PASSING INTEREST

Do you ever find yourself driving along the highway, wondering what in the world the billboard you just passed was advertising? Billboard advertisers have long been plagued by the inability to accurately predict what will and won't elicit such responses. Only after the billboard was up—and the money spent—could they begin conducting surveys.

Now there's a way to test in advance what placement, design, text and colors will spark the best response. Srinivas Reddy, a professor of marketing at the University of Georgia's Terry College of Business, has developed

a three-dimensional simulation model that shows what a billboard would look like when viewed from a passing car, allowing advertisers to test viewers' responses.

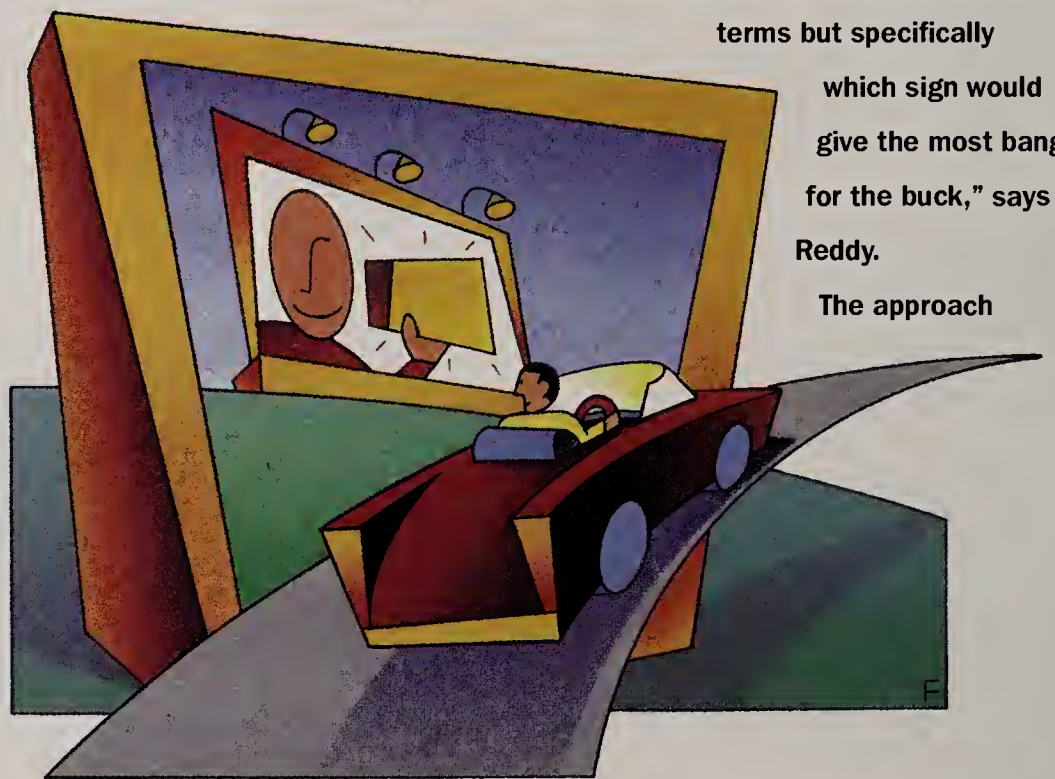
To create the simulations, Reddy uses image-editing software from Alias Research Inc. on a Silicon Graphics Inc. workstation. He first

transfers a videotape of the selected highway into the system; the image of the prototype billboard is then inserted in the appropriate position. Next, the software automatically adjusts the billboard's size and proportions to simulate drivers' changing perceptions as they pass by it. Reddy then transfers the completed simulation onto a videotape, which he can play for testers and observe their reactions.

The result: Advertisers learn "not in general terms but specifically

which sign would give the most bang for the buck," says Reddy.

The approach



can also be applied to retail

stores to help determine the most strategic uses of such variables as lighting and floor design, he says. Reddy doesn't yet have any customers, but he has been contacted by several billboard advertisers since his work was featured on CNN in May. He can be reached at 706 542-3759. ■

push information sharing to the top of Fortune 1000 companies' to-do lists. Large corporations will revamp their approaches as they coordinate activities across an increasing number of development organizations.

In fact, Forrester predicts

that many will implement an "organic data resource," which includes a fluid information-sharing policy, a global information registry that supports sharing between developers and users, and an information-access backbone built on gateway and replica-

tion technology. "The end result: Developers will be motivated to share because the information's inherent value will be both visible and accessible," says Cameron.

For a copy of *The Organic Data Resource*, call 617 497-7090. ■

Two Strategies for Client/Server Applications Development

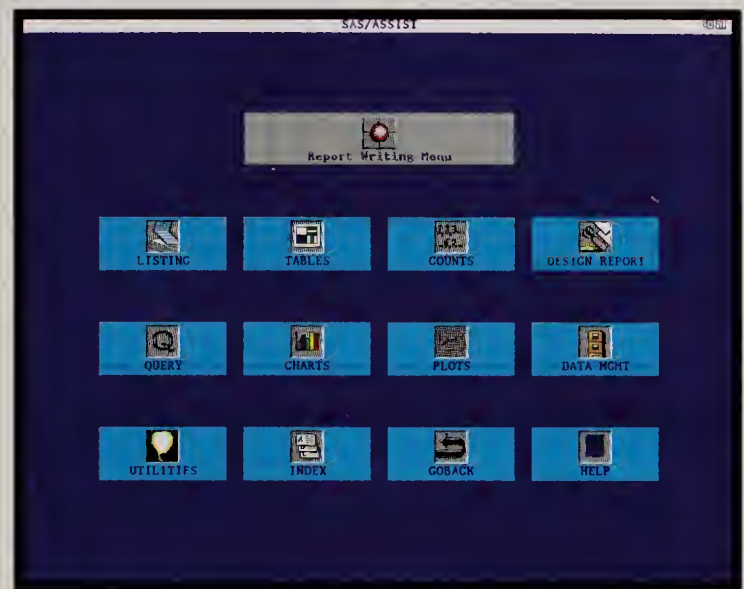
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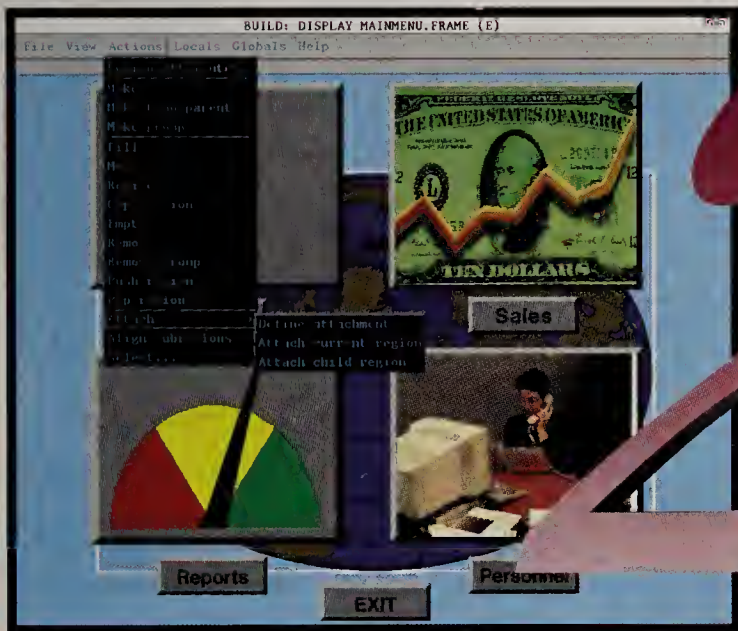
Empower Your User Community

1 The SAS System offers a secure and manageable environment for making enterprise data available on demand. And for turning that data into useful business information for strategic decision making.

Through an intuitive, dynamic, and data-driven interface, even novice business users can handle the most sophisticated requests by themselves: ad hoc queries, reports, business graphs, forecasts, analyses, and more. By making the SAS System your standard for end user access and reporting, you'll empower users to satisfy their own information requests.



Empower Your Applications Developers



2 With more self-reliant end users, developers are free to concentrate on implementing client/server applications critical to your business. Here, too, the SAS System satisfies your most demanding requirements by supporting an *iterative* approach to rapid applications development. Put strategic business systems in production quickly... even as you continue to develop and enhance them.

Object-oriented tools simplify and speed development. And support for multiple client/server models (including distributing application logic to the processor best equipped for the task) provides a flexibility unrivaled by "client only" development tools. What's more, the SAS System's portable architecture means applications look and run the same no matter where you deploy them, desktop to data center, preserving your applications investment over the long haul.

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With the SAS System, you'll improve business processes rather than just automating them. Users become more independent, developers more productive, and applications more valuable...today and tomorrow. For a closer look at the SAS System—and to find out how to receive these applications development tools for a free evaluation—just give us a call at **919-677-8200**.



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TRENDLINES

MEASURING I.T. VALUE

A NEW METRIC SYSTEM

An April *CIO* internal survey ranked reader interest in 14 management topics, with the top concern being "techniques for measuring contribution of information technology to corporate results." Given the weight this concern received, it's not surprising that a fellowship of CIOs is taking the matter into its own hands, rolling up its collective sleeves to craft a standard methodology for measuring IT value.

The idea is to pool the metric experiences—successes and failures—of the CIO brain trust of the Chicago Research and Planning Group (CRPG), an assemblage of IS executives. Cross-industry focus teams have been meeting to come up with a common-denominator definition of IT value. Combining the best metric elements and avoiding the miscarriages, the team will define a method and metric set to measure IT business value in any size organization in any industry.

Why should busy IS chiefs subject themselves to what can only be a major expenditure of time and sweat? It's the best way to create something that has a chance of working, says Richard Arns, executive director of the CRPG. Consultants and academics have a broad range of experience, but nothing rivaling that of the 120-member CIO group. There's also the lure of experience exchange among peers in the

same pickle, something not necessarily available from expertise-for-hire, he says.

The timing is right for a major assault on this perennial problem. Without a single technology leader like IBM to show the way, value-based technology choices are more confusing than ever before. There's also increasing shareholder pressure on CIOs to justify themselves and their budgets. With more of the technology and costs shifting to user departments, these groups are also being called to the mat on IT value. The CRPG members expect their method can be applied by these user-managers as well.

The team plans to have a methodology outlined by year's end, with pilot implementation and fine-tuning to take place during 1995. Arns knows CIOs reading this will be skeptical because "so many of these efforts have gone up in flames." But reliance on CIO-only labor and the current economic climate will help this one succeed, he asserts.

Arns invites non-CRPG chiefs to call him to share their experiences and contribute ideas to a methodology that will eventually be available to all interested parties. He can be reached in Barrington, Ill., at 708 381-9128. ■

VIEWS FROM THE TOP

When it comes to the CIO role, the perceptions of top executives are often worlds apart from the views of the CIOs themselves. A survey released this summer by the Profit-Oriented Systems Planning Program, an Atlanta-based peer organization of IS executives, indicates that the gap between chief executives and their chief information officers on this subject is as wide as ever.

Eighty-six percent of the 63 CIOs surveyed in the study said that business acumen and knowledge of the

FROM GLASS HOUSES TO GLASS CASES

Good hardware dies young, thanks to the rapid pace of technology evolution. So what happens to old machines whose usefulness has passed? Some are donated to schools or charitable organizations; others get shipped off to developing countries; most end up on the scrap heap.

Now there's a growing nostalgia for this old equipment. Computer-history associations are springing up around the country, and computer makers are opening museums devoted to their antiquated

products. What's more, collectors are making some serious cash. According to a report in *The New York Times* (April 17, 1994), the Apple I, first sold for \$666.66 18 years ago, is commanding prices as high as \$12,000.

Old-iron aficionados can share their interests in the Usenet news groups [alt.folklore.computers](#) and [comp.society.folklore](#), or through such regional groups as the Computer History Association of California (CHAC), the Computer History Association of Delaware or the Historical

Computer Society in El Paso, Texas.

The CHAC, whose charter is to "study, preserve, protect and popularize the history of electronic computing in the state of California," publishes a quarterly newsletter devoted to the topic.

It also collects hardware, software and documentation,

and hopes to open a major computer-history museum within the next five years.

Contact the CHAC at 3375 Alma, Apt. 263, Palo Alto, CA 94306, or through the Internet at cpu@chac.win.net. ■



RANK 1992	1991	COMPANY
1	1	GENERAL MOTORS Detroit
2	2	EXXON Irving, Texas
3	3	FORD MOTOR Dearborn, Mich.
4	4	INTL. BUSINESS MACHINES Armonk, N.Y.
5	5	GENERAL ELECTRIC Fairfield, Conn.
6	6	MOBIL Fairfax, Va.
7	7	PHILIP MORRIS New York
8	8	E.I. DU PONT DE NEMOURS Wilmington, Del.
9	9	CHEVRON San Francisco
10	10	TEXACO White Plains, N.Y.

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SYBASE

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EVENTS

Information Superhighway Summit

Red Lion Hotel, San Jose, Calif.
Sept. 26-28
IDG World Expo
800 225-4698

Tutorials and sessions will be presented by industry executives, consultants and academicians involved with networking infrastructure. Topics will include comprehensive reviews of technologies and architectures; assessments of the role of telephone networks, cable systems and the Internet; and updates on early trials and test beds. Registration: \$595-\$1,395

Understanding ATM: A Practical Guide to ATM Services, Applications and Broadband Technologies

Boston, Oct. 3 & 4
Phoenix, Oct. 5 & 6
Data-Tech Institute
201 478-5400

This two-day course familiarizes participants with the benefits of asynchronous transfer mode (ATM) and explores technologies currently available. Case studies focus on how some companies are using ATM services

successfully and how others are planning for a smooth migration. Registration: \$895

Interchange '94: The Summit of the Intergovernmental Enterprise

Washington Convention Center and Renaissance Hotel, Washington
Oct. 11-13
Federation of Government Information Processing Councils, The State Information Policy Consortium and Public Technology Inc.
800 NTP-SHOW (800 687-7469)

A mix of panels and groups will work to identify key initiatives and make recommendations to the White House and Congress on the use of open-systems technologies. Conference breakfasts, luncheons and dinners will feature speakers from the administration, state and local governments, and industry. Interchange '94 will run concurrently with GovCom '94, The Government Computer and Networking Forum.

Registration: \$395-\$695

PIRATES OF THE CARIBBEAN... AND ELSEWHERE

Software publishers are tired of picking up the tab for everyone's free lunch, and a new study by the Software Publishers Association (SPA) illustrates just how widespread the problem is. "Thieves last year stole as much business software as McDonald's sold ham-

burgers," says Ken

Wasch, executive director of the SPA in Washington.

Software revenues lost to thieves around the world totaled \$7.4 billion last year, he says.

The study analyzes software piracy in 1993 by country. Among the big culprits: Latin American countries, where an overall 95 percent of business

software is acquired illegally; Korea, where 89 percent is pirated; and Spain and Portugal, where 79 percent is stolen. A third of all software in use in the United States in 1993 was stolen, but because this country buys five times more business software than any other, that amounts to a hefty \$1.6 billion lost.

"We find that as per-capita income goes up, piracy rates generally go down," says David Tremblay, research director for the association. However, he adds that cultural issues and enforcement may also play a significant role.

To confess, point the finger or just get more information, call the SPA Piracy Hotline at 800 388-7478. ■



Nations with the lowest rate of software piracy*

U.K. & IRELAND	27%
SINGAPORE	29%
UNITED STATES	33%

Nations with the highest rate of software piracy*

INDIA & PAKISTAN	95%
LATIN AMERICA	95%
KOREA	89%

*Percentage of business software illegally acquired

Source: Software Publishers Association

business ranked first among the skills they need to do a good job. The 12 CEOs surveyed, on the other hand, said that the No. 1 qualification for a successful CIO is a broad understanding of technology. Information executives ranked understanding technology third on their list of critical skills.

CIOs also rated relationship building with peers as critical to their jobs, whereas CEOs didn't even mention it in their evaluation of the CIO role. Instead, chief executives said they need CIOs with stronger leadership skills who are successful players on the senior-management team.

This gap "is nothing less than a fundamental disconnect between the technology executive and the rest of corporate management, a mismatch caused by disparities in training and temperament," writes Charles Wang, CEO of Computer Associates International Inc., in his forthcoming book *Technovi-*

sion (McGraw-Hill).

The disconnect is so ingrained in corporate culture, according to Wang, that we don't recognize it as the most profound limitation to productivity and competitiveness.

For more information about the study, call 404 455-0070. ■

RemoteWare,

AND THE *sweet* DREAMS OF THE CIO.

When PERCY
CLOSED HIS EYES,

he pictured the streams of electronic messages that now ran regular slalom courses between the home office and all 2,000 of his franchisees' busy locations; like tireless, happy ants carrying valuable morsels from picnic tables to the nest and back again.

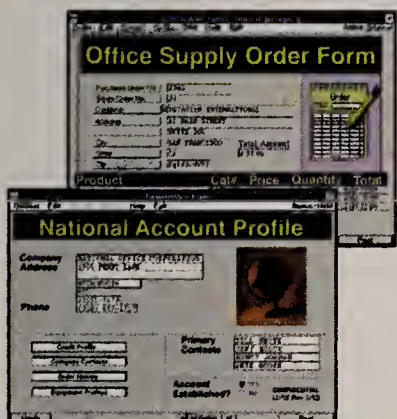
The phone bills were smaller. There was no army of programmers and technicians

hovering over a blinking hatchyard of leased-line modems and mainframe-consuming communications software in constant need of tweaking, tuning or just one more patch. There was only the contented hum of the new LAN-connected RemoteWare® server in the corner of his data center, quietly managing this virtual reality network of electronic commerce that kept his telephone silent, his desk clean of the uncontrollable CIO clutter of a year ago.



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The company had leapt up from its corporate coma with the painless electro-shock therapy of its new RemoteWare client/server system. Suddenly, automated dial-up communications sent centrally-created electronic forms, documents, reports and mail coursing effortlessly through once-clogged arteries between corporate legacy systems and remote franchise PCs. New, easy-to-use applications were created in weeks, not months, and distributed electronically. Paperless ordering became a reality. Centralized billing made national account



programs a source of new business for franchiser and franchisee alike, and gave Percy more than one night such as this.

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Nights in which the CIO of a large corporation could actually put his head to pillow at a reasonable hour, close his eyes, and dream of ants and picnics and RemoteWare, with the smile of a man much younger all over his face.

An Information Manifesto

The old, systems-based model of technology development badly serves the modern organization and should be quickly done away with. In its place, CIOs should adopt a manufacturing model whose goal is the development of a flexible catalog of information products.

BY PAUL ROSTICK

We must completely reengineer the corporate information process. Physician, heal thyself, says the old proverb. To reposition their organizations as agents of corporate reengineering, CIOs face two major challenges: Not only must their organizations lead the way to corporate reinvention, but they must simultaneously perform self-reinvention. Will information systems organizations swallow their own reengineering medicine?

Information is the energizing force of the modern enterprise. Yet, paradoxically, within the typical American corporation, this powerful asset is mired in misunderstanding and mismanagement. Most firms have literally thousands of individual files and databases. An audit of their collective contents would reveal that under the gleam of leading-edge technology, corporations are operating with the information equivalent of muck.

Despite the enormous resources expended on information technology, true information management has

remained elusive. The systems-oriented approach that dominates our management of corporate information does not work. We need a reengineered information process.

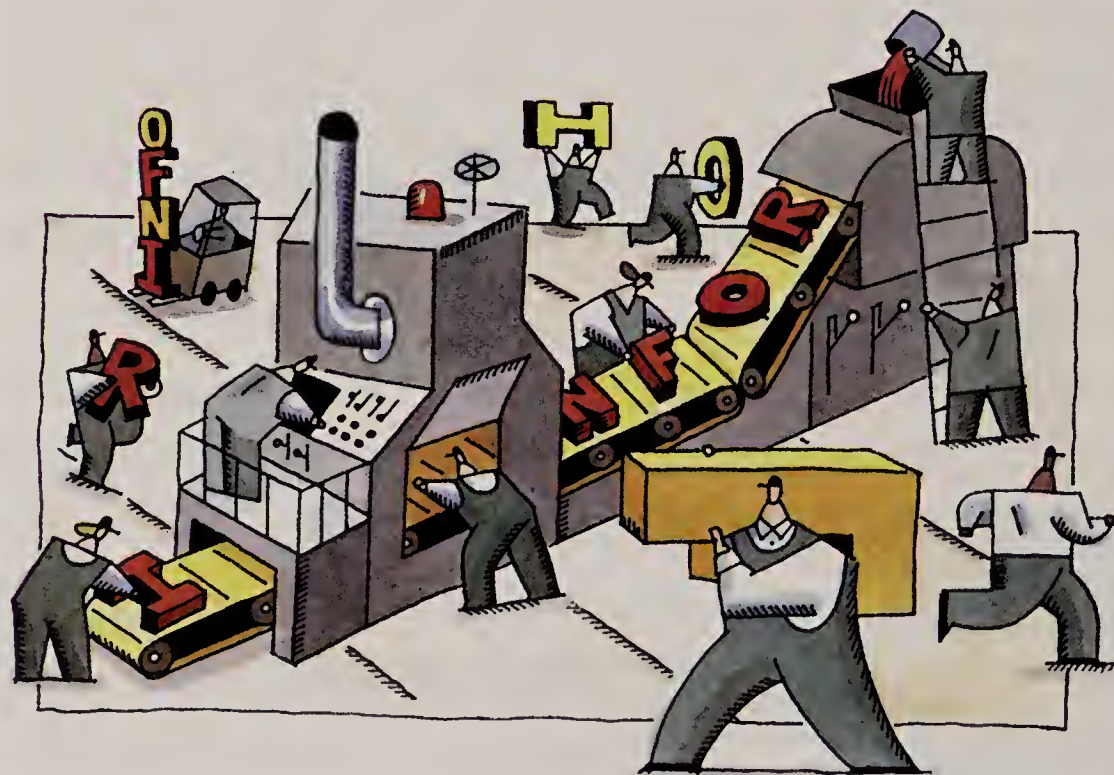
In decades past, when the first order of business was automation, a "technocentric" focus—with the computer as the automation machine—made sense. Old-line data-processing organizations built systems that automated American business. But today, the first order of business is information. Today's business requires a complete information-management environment, one that goes far beyond mere departmental automation. We must complete our transition from business automation to information exploitation.

Yet, the information focus of most organizations remains entrenched in a technocentric model. This obsolete focus diverts us from the more-fundamental challenge of designing the most effective information-management process. How can we use technology to enable the activities of that process?

To paraphrase a reengineering fundamental: No amount of technology will fix a broken process. When it comes to key business processes that need fixing, few are more broken, and more worthy of repair, than the information process. And the solution may not rely upon technology at all.

For starters, corporations must abandon hierarchical management structures and functional divisions in favor of a process-driven structure. But even new and better processes cannot be carved in stone; if they were, the organization would eventually find itself back where it started—rigid, slow moving and obsolete. The corporation of the future must be resilient and reconfigurable.

To have any hope of achieving process resiliency, we need information





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to both integrate activities and liberate them from the constraints of time, place and form that systems-based processes impose. After all, a system is really just someone's best anticipation of a set of departmental activities and the data to support them. However, rapidly changing business requirements make it difficult to constrain business activities within old organizational boundaries. Continued attempts to force-fit a business into predetermined systems are misguided.

The "Information Factory" is a valid model for the completely reengineered corporate information process. It fundamentally redefines the IT organization in terms of the product we produce, the process by which we produce it and our use of IT as the enabler of that process. The idea is both simple and radical. The true information process is best represented by the fresh application of a familiar paradigm: manufacturing. IS organizations must evolve from being clans of system builders to become information-manufacturing and -distribution operations:

- The product-design process involves the activities of designing new information products. The product catalog is compiled based on the real and projected information requirements of the base of information consumers. The information consumers are the people (and the automated functions) currently running the business. Thus, some of the products will be meant for human consumption and some for "system" consumption. The process must support the design of standard off-the-shelf information products as well as custom-designed products. The number and types of information products will be as varied as the needs of the consumers.

- The order-fulfillment process involves the activities of filling consumer orders for information products. Consumers must have a way to order standard and custom products and to further specify such items as special packaging and shipping requirements, and delivery times.

- The manufacturing process is concerned with the activities of assem-

bling the various kinds of information products efficiently and according to specifications. The process must accommodate both standard and custom products. It must optimize the production schedule and produce quality, defect-free information products. It must be adaptable to changes in schedules, processes and equipment.

**Today's corporate
information asset lies like
sediment at the bottom of
an ocean of systems. It
should take its rightful
place as the representative
reality of the enterprise.**

- The customer-service process involves the activities of servicing and supporting customers. Areas of service and support include order fulfillment; product support; custom products and services; and consultation, training and general information.

- The management process involves the activities required to manage the other processes. Besides administration and coordination, the management process must oversee related support functions, including transportation, logistics, equipment maintenance and facility maintenance.

Attempts to directly measure the impact of information technology on the bottom line will always prove confusing and misleading—because the relationship of IT to the bottom line is indirect. The real value of information technology is tied directly (and rightly so) to information management. This relationship is commonly misunderstood and is the source of much of the conflict and confusion surrounding the heightened debate over the real productivity impact of IT.

This will always be true of technology. No matter how sophisticated it becomes, take away the informa-

tion and it means nothing. This is not to trivialize technology but to place it in an information-management perspective. There is a world of difference between exploiting information technology and exploiting information via technology.

Because the Information Factory is based on a manufacturing paradigm, it makes management issues easier to grasp: Manage production and distribution. The production-oriented information-product focus will help executives develop better management and measurement practices. Instead of measuring the vagaries of information technology ROI, businesses can measure something more tangible and more valuable: the production and distribution of information truth.

Until now, corporations have focused information-management resources on the system-development process—the tools, technology and techniques of system construction, configuration and maintenance. But who manages the information? Who oversees the information process?

With an enormous amount of energy, care and dedication, IT staff tend files and databases. The issue, however, is not one of files and databases but of information integrity and reliability. So, the question should be: "Who is tending the information truth of the business?"

This is not intended as an indictment of "incompetent" people; the indictment is brought against a broken process. We can no longer afford to treat information as merely the residue of computer systems. Today's invaluable corporate information asset lies like sediment at the bottom of an ocean of systems. Instead, it should take its rightful place as the representative reality of the enterprise.

Thus, the challenge before U.S. corporations (and, indeed, the entire computer industry) is to refocus on the real information process. **CIO**

Paul Rostick is director of research for Mentor Group Inc., a Wayne, Pa., firm specializing in business-process reengineering and information architectures.



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The Vision Thing

Increasingly, companies are using vision statements to explain who they are, where they're going, and why customers and employees should follow them there

BY ANNE STUART

"Where there is no vision, the people perish" —Proverbs 29:18

Levi Strauss & Co. has one. McDonald's Corp. doesn't but plans to soon. A New Jersey county has at least 50. And every Marriott hotel creates its own. They're vision statements—also known as "mission statements," "direction statements," or by a half-dozen other names.

While a few companies dismiss vision statements as too simplistic or too trendy, plenty more trumpet their values on everything from posters to business cards. Others are working feverishly to put their own corporate hearts on their sleeves.

In a recent survey of 463 companies by Boston-based Bain & Co., vision statements ranked as the most popular of 25 commonly used management tools, with 94 percent of the companies polled reporting their use. And it's not just the Fortune 500 types. Faced with increased competition and tighter budgets, family businesses, virtual companies, schools,

nonprofits, unions, local governments, and even religious orders are trying to codify their organizational cultures and aspirations.

As it picks up speed, the vision-statement trend has also spun off a new industry: consultants who specialize in crafting lofty manifestos, often at lofty prices (try \$3,000 a day and up). These consultants, like the organizations they advise, don't necessarily agree on just what a vision statement is. They have, however, achieved some consensus on what it isn't. It's not an ad campaign, a laundry list, or (necessarily) a public pledge, neither purely abstract nor totally specific, capricious nor carved in concrete, a bumper sticker nor an encyclopedia.

So what *is* a vision statement? Bob Topor, a marketing consultant in Mountain View, Calif., compares it to a nation's constitution or a politician's platform. Done well, it's a glimpse of an organization's philosophies, values and dreams. Done poorly, it's a hollow facade.

Above all, an effective vision statement should sum up the organization's past, present and future—heavy on the future—in as few words as possible. "It says what you do and what you are striving for," says Jan Cook Reicher, president of the Market Links International Inc. consultancy in Hoboken, N.J., and author of a six-page guide to vision statements. Houston consultant Joseph V. Quigley, author of *Vision* (McGraw-Hill Inc., 1993), says the final product should answer these questions: "What is the corporation today? What does it aspire to be?"

It's true that there's little, if any, hard evidence that companies with vision statements perform better than those without. Still, it's common knowledge that leaders



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with long-range vision fare better than those who lurch blindly from one short-term crisis to the next. Statements crystallizing the organization's goals can help illuminate the road to the future.

"I've found that companies that don't do that kind of thinking don't know where they're going," Cook Reicher says. John Donovan, president and CEO of the Cambridge Technology Group and an MIT professor, takes it further: "If a company does not have a vision, it is dead."

At the current rate of organizational change, consultants say, companies need a clear, consistent sense of where they're headed. Vision statements not only provide a road map but sometimes serve as the vehicle by forcing leaders to zero in on priorities and core values. That concentrated approach is, in fact, the most important aspect to crafting a vision statement. "Focus. Focus. Focus," says Cavas M. Gobhai, a Cambridge, Mass., business consultant who spends half his time helping organizations draft what he prefers to call "statements of direction."

Gobhai, whose clients range from the town of Arlington, Mass., to Xerox Corp., says would-be visionaries must first determine the statement's audience: internal or external?

Some statements, of course, cover both sides. But Gobhai warns, "The danger is that in making it rosy sounding for external consumption, you lose the internal edge." For instance, a strong competitive statement might motivate employee support, but it might also tip the company's hand about its business strategies. On the other hand, a watered-down statement may generate less employee enthusiasm. That's why some companies create separate public and private messages—no problem, so long as they don't contradict each other.

What makes a vision statement sparkle?

Personality. "The best ones have a clear sense of uniqueness," Gobhai says. "People read it—the internal audience especially—and say, 'Right. I can see myself in there.'" Really,

it's the organization's soul. That's why consultants don't like to use generic buzzwords or fill-in-the-blank statements. What's right for General Mills Inc. may not fit General Motors Corp.

Collaboration. Successful statements reflect shared values, shared goals, shared dreams. And if employees participate in creating the vision, they're more likely to embrace the finished product. But if it's a man-

**"If a company does not
have a vision, it is dead."**

—John Donovan

agement-only project, don't pretend it's negotiable. Instead, Gobhai says, "find the highest ground that's still open for creative problem solving and input." Senior executives may draft the overall statement, but individual units can determine how it will be implemented.

Moving content. The ideal vision statement inspires pride and motivates. "The vision must contain a strong challenge," Quigley says. "It must appeal to their hearts and minds. Profits are not enough." But it must also be credible and enduring. Donovan says this statement by Australian iron-ore producer Hamersley Iron Ltd. pretty much says it all: "Be the company that everyone wants to work for. Be the company that everyone wants to do business with. Be the company that everyone wants to own."

Brevity. There's elegance in simplicity, and shorter statements are more easily remembered. "Everyone ought to be able to say what the vision is," Gobhai says. "You shouldn't have to shove a three-ring binder at them and say, 'Figure this out.'" Consultants differ on ideal length but generally recommend a few sentences to a few paragraphs—or less. In *Vision*, Quigley singles out Findlay, Ohio-based Cooper Tire & Rubber Co. for its succinct credo: "Good

merchandise, fair play and a square deal."

Companies that want more words can compromise by writing a short vision statement and covering other concepts in lists of principles, values, goals or aspirations. But the package should stay concise. Example: General Public Utilities Service Corp. of Reading, Pa., uses a 13-word purpose statement, a 24-word mission statement and a list of five values and 26 suggested behaviors—and still fits the whole thing on a wallet-sized card. Levi Strauss outlines its mission, aspirations and preferred leadership qualities in about one page. Other organizations summarize their messages in a single, formal statement, then add a few sentences of informal elaboration or strategy. Or, like Somerset County, N.J., they can develop one organizationwide statement and separate ones for each unit.

Impact. Finally, the statement has to mean something. There's got to be action behind those carefully chosen words. "The end product is not the written document," says John P. Kotter, Konosuke Matsushita professor of leadership at the Harvard Business School and a specialist on corporate culture. "The end product is to have your employees understand where you're going so they can help you work toward it."

Of course, the ability to turn aspirations into accomplishments often hinges on IT. For that reason, consultants say, CIOs should be involved in drafting the vision as well as enabling it. At McDonald's, where a "futures group" is developing statements, business and technology representatives held a symposium to work out the IS role in making the mission work.

Quigley, himself a former CIO, sums up the "visioning" process with a natural-science metaphor. He compares the current business environment to botany, biology and astronomy, where everything either expands or contracts. "We have only those two choices in business: We're either growing or dying," he says. "Vision is the seed for growth." 

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REMOTE CONTROL

When a company decentralizes, IS must decide how to allocate control of its technology assets. End users in the field demand some, but giving them too much can threaten the integrity of the IT infrastructure. Here, one IS executive gets advice on finding the delicate balance that satisfies both sides.

BY CAROL HILDEBRAND

RICHARD LINDEN IS FACING a situation with which any concerned parent of a college-bound freshman can sympathize. His firm, MMI Companies Inc., is in the middle of a migration from a traditional, hierarchical corporate structure to one of decentralized, cross-functional teams. While Linden, MMI's vice president of information systems and services, fully backs this move to increase the company's competitive edge, he realizes that a new IT investment-management strategy may be in order. Like a parent, he sees the necessity of giving users more independence, yet he is adamant about maintaining the integrity of MMI's information-systems architecture.

The Deerfield, Ill., company, which provides insurance to health-care organizations and professionals as well as

consulting services ranging from strategic planning to risk assessment, will ultimately have 15-plus teams grouped into three geographic regions. In recent years, MMI has opened one or two full-service regional offices every year and smaller satellite offices on a quarterly basis, so Linden's constituency is growing rapidly. At the same time, his group has a mandate from the board of directors to demonstrate IT's return on investment and to ensure that all IT activities support MMI's technical architecture and IS strategies. Therefore, IS must have a very clear idea of what is being invested in technology, including less-tangible items such as training. Linden is also a member of the Chicago Research and Planning Group, a body of CIOs now researching a standard method for measuring IT investment value (see *Trendlines*, Page 14).

SUBJECT

MMI Companies Inc., Deerfield, Ill.
Industry: Risk management and consulting to health-care organizations and professionals
Revenues: \$160 million
Total employees: 375
IS staff: 30
IS executive: Richard Linden, vice president of information systems and services

OBJECTIVES

- Effectively manage IT resources and corporate information as the company migrates to a structure of decentralized, cross-functional teams
- Avoid the chaotic proliferation of end-user computing resources that would frustrate IT investment management
- Maintain the integrity of the IT architecture

CONCERNS

- How can we continue to manage the IT investment as our users become geographically dispersed?
- How can our centralized IS staff serve the needs of distributed end users and still reap the benefits of purchasing economies of scale, data integrity and technology compatibility?

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RICHARD LINDEN: "Can the structure we have now work in a team-based organization?"

Linden has already taken steps to assess the value of his company's current IT investment. He has worked with MMI's centralized accounting group as well as business-unit heads to come up with a total corporate investment in technology. To ensure consistent terminology and accurate budget numbers, the IS department sends a guidance memo to department heads at budget time, giving examples of computer configurations and possible expenses. The real-life examples help cut down on inconsistencies, Linden says.

Having arrived at a cost-of-computing model for the company, Linden's next challenge is to figure out how to manage his increasingly dispersed IT architecture and resources. Currently, the centralized IS group has strict purchasing policies and guidelines—backed by MMI's senior executives—that enable Linden to leverage econo-

mies of scale. He also enforces technical standards to ensure compatibility and uniform maintenance and has centralized corporate information to protect its integrity.

"Can the structure we have now work in a team-based organization?" he wonders. Linden does not want regional team leaders to feel stifled and rebellious from having to get IS approval on expenditures ranging from hardware to consulting services, and he doesn't want to handcuff the creativity and independence of the teams. But he knows that for MMI to effectively manage its IT investment, there must be a corporate approach that supports standards and cohesiveness across the organization. Would it be wise to incorporate stricter purchasing procedures and data policies to combat the effects of end-user diaspora?

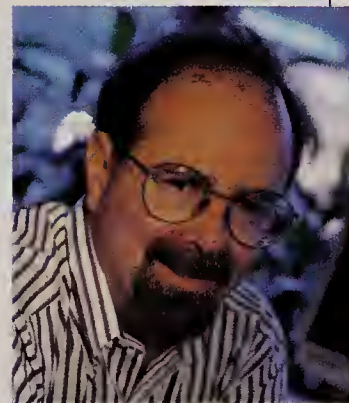
Linden is optimistic that a closely knit IT-user community will help



RICHARD M. KESNER
Babson College



MARK T. BOLTON
Square D Co.



WILLIAM WALTON
Real Decisions

PHOTO BY GREG GILLIS

maintain order. "If we move together as a company, we mitigate the effects of any loose cannons who might try going out on their own," he says. However, Linden would like advice from veterans of decentralization on how to spike those cannons while keeping users happy.

Richard M. Kesner, *CIO and chair of the reengineering design team, Babson College, Wellesley, Mass.*

Mr. Linden, your challenge is quite common among today's globally distributed organizations, especially those that have moved to a client/server information architecture. Simply put, you face the question of which IT capabilities and services should remain centralized and which should be transferred to the control of end users in the field.

There is no one correct answer to how much control you should parcel out to end users, since much depends on marketplace dynamics, the culture of the company, the nature of its business and the technologies already at hand. I doubt that you have the time (or the interest!) to control all IT components in your organization; I'd say you should divest IS of any activity that can best be done locally. IS can then focus on the primary issue of creating an information infrastructure to drive the company.

You've already made a good start by implementing technical standards at MMI, and you should not have too much rebellion if you satisfy the top three IT needs of end users: access to the data needed to run their businesses, easy-to-use tools at the desktop and quality output in the appropriate media.

Keeping this in mind, your standards should allow end users the freedom and flexibility to act quickly. At the same time, you need to limit options so that users can't mess with things such as compatibility and technical architecture. One way to do this is by setting standards for configurations rather than specific brand names. For example, if the network standard calls for a 486-based client



RICHARD M. KESNER: "Divest IS of any activity that can best be done locally."

machine with 12MB of RAM, 120MB of local storage, etc., a network-compatible network interface card and a particular laser printer, the brand choices may be left to the end user without jeopardizing overall IS operations. Conversely, if centralized IS has negotiated a national purchase agreement with a vendor, the end user may enjoy a certain level of freedom in selecting the final system configuration.

The question of data access is one of the biggest potential confrontation grounds in a decentralized organization. As I mentioned earlier, it's a top priority for end users, but giving them complete freedom opens the door to the creation of redundant and inaccurate information. It behooves IS to create an information infrastructure that satisfies users' access needs without allowing them

to fracture information into ad hoc, unlinked databases.

One place to start is identifying the elements of the IT environment that are most critical to the success of the enterprise. More often than not, these success factors have little to do with technology and much to do with data and its use. So, as part of any distributed information-systems architecture, I would focus on establishing data standards. These standards should define all important data elements in terms of their characteristics, location within the network, authoritative sources and so forth. They should also define access, security and contingency-planning requirements for each data element. In addition, you should ensure that there is some standard in place within MMI for data sharing.

These standards will define ways

ASSOCIATED GROCERS INC.

SEPTEMBER 1993—The IS group at Associated Grocers Inc. was fretting over the difficulty of centrally managing the company's new distributed environment. The staff was already developing mission-critical applications for a Unix-based client/server architecture that would eventually serve 500 users at 350 sites. The \$1.2 billion, Seattle-based firm wanted to manage and control these computing facilities centrally for its independent grocer customers as it evolved its business from grocery retailing into logistics management. But there was a void in the marketplace where mature client/server management packages should have been, forcing the IS team to bash out its own make-do tools—scheduling, diagnostics, security, backup—piecemeal, inefficiently retrofitting for each new application or hardware component. In a Second Opinions article published one year ago, a panel of client/server veterans from MetLife Insurance Co., United HealthCare Corp., First Boston Corp. and the Yankee Group commiserated, shared experiences and proffered advice (see "A Controlling Interest," *CIO*, Sept. 1, 1993).

It wasn't easy, but a year later, Associated Grocers has gained a measure of control and confidence in managing its client/server architecture. IS team members say they now have a clear sense of where they are going, and they know that what they are doing now will work in the future.

The company opted not to outsource, preferring to rely on the internal client/server expertise it had acquired, and it agreed with panelists that allowing users to perform their own management tasks would be a mistake. Instead, Associated followed the advice to "adopt" a vendor and form a mutually beneficial alliance. It chose Hewlett-Packard Co. after also considering IBM Corp., Computer Associates International Inc. and others. "They have taken on a role of counselor and partner," says Richard Lester, Associated's vice president of information services. "We made that a condition for [their] being a preferred vendor." Associated has a similar alliance with NCR Corp. because of that vendor's expertise in retailing. Lester's team chose HP's OpenView product suite as a framework for centralized client/server man-

agement. OpenView provides a common management look and feel and built-in application programming interfaces, according to Associated. It also enables event-based network monitoring, a panelist suggestion for avoiding the false system-trouble alerts that were annoying Associated early on.

The HP management framework is open enough to accept plug-in third-party management tools; Associated is now piloting a distributed job scheduler. Such

packages—Lester's preference over homegrown solutions—are still immature but are improving, he says. Associated has chosen to avoid tools that run on mainframes or have hooks into hosts; big iron is not part of the company's future. Unfortunately, this further narrows the selection of mature products.

Though Associated is still forced to develop some tools itself, the inefficiencies of a year ago have been eliminated by a new object-oriented development strategy. Programs are easier to adapt to new applications because Associated develops them with reusable components and function menus. Now, instead of having different versions of software in many different locations, the company can rely on a tool that is essentially the same and is run from a central console.

Associated hasn't crossed every management bridge, and it's suffered some delays. Lester has yet to figure out a way to manage backup for the 100-gigabyte databases that feed decision-support applications. Ironically, Associated has mastered many technically complex challenges but struggled with some of the supposedly simpler pieces. For example, while it has been able to manage a complex backbone network, Lester's group has gotten hung up on things as relatively simple as tape-library management—a color-coding scheme worked well until they ran out of colors.

If Lester were a panelist today, dispensing advice to someone in similar straits, his top suggestion would be to not wait. "You can't get started early enough," he says. Even though his team toiled over homegrown management schemes in lieu of packages, the effort was worth it. "We'd be a long, long way behind if we chose to wait on products," he says. "You can't underestimate the value of all that experience."

—Richard Pastore

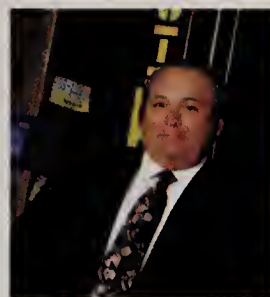
A CONTROLLING INTEREST

Centralized management of distributed systems is a frequent, highly sensitive goal for those making the client/server change. In this month's "Second Opinions," five seasoned executives offer advice to a CIO in the process of negotiating a client/server transition.

BY RICHARD PASTORE

MANY CIOs are in a bind. They are faced with the challenge of managing a client/server environment. The challenge is not just the technology, but the people. The challenge is to get the most out of the technology while keeping the people happy. The challenge is to get the most out of the technology while keeping the people happy.

The challenge is to get the most out of the technology while keeping the people happy. The challenge is to get the most out of the technology while keeping the people happy. The challenge is to get the most out of the technology while keeping the people happy.



RICHARD PASTORE is vice president of information services at Associated Grocers Inc., Seattle. He has been in the industry for 15 years and has a B.S. in computer science from the University of Washington. He is a frequent speaker at industry conferences and has written several articles on client/server management.



JOHN J. BROWN is vice president of information services at Associated Grocers Inc., Seattle.



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in which all MMI corporate information will be created, stored, described and shared in a consistent, secure, effective and efficient manner. Furthermore, they will greatly simplify overall network design and predetermine—or at least significantly limit—hardware and software options, reducing much of the unnecessary cost and confusion around multiple corporate IT platforms.

While it is important for your regional offices to contribute to the design of this overall information architecture, they should do so only within the confines of your overall design plan. This will make it easier to designate appropriate access to suit the needs of each regional group. For example, if a field office requires its own regional version of the corporate database, the staff should design that version jointly with the centralized IS unit.

Again, there is no single solution, because there are any number of trade-offs around cost, flexibility, response time, security and so forth. But if you let the business process drive the organization's data-sharing strategy, this in turn will dictate how data will be distributed to the field teams and help you keep loose cannons from blowing away your data integrity.

Mark T. Bolton, *director of manufacturing systems, Square D Co., Raleigh, N.C.*

Mr. Linden, you are faced with the ultimate IS (choose one): A. opportunity or B. nightmare. You must keep MMI's IS resources aligned with the needs of a business that is simultaneously growing and decentralizing. While users want computing freedom, you want the benefits that come from a centralized IS department. How do both you and the business units manage to have your cake and eat it, too? One solution is to create a partnership mind-set between IS and your users. This will serve you much better than the "us versus them" mentality found at many companies.

"Technical standards that come from a cross-functional team are more readily accepted and voluntarily adhered to than 'IS' standards."

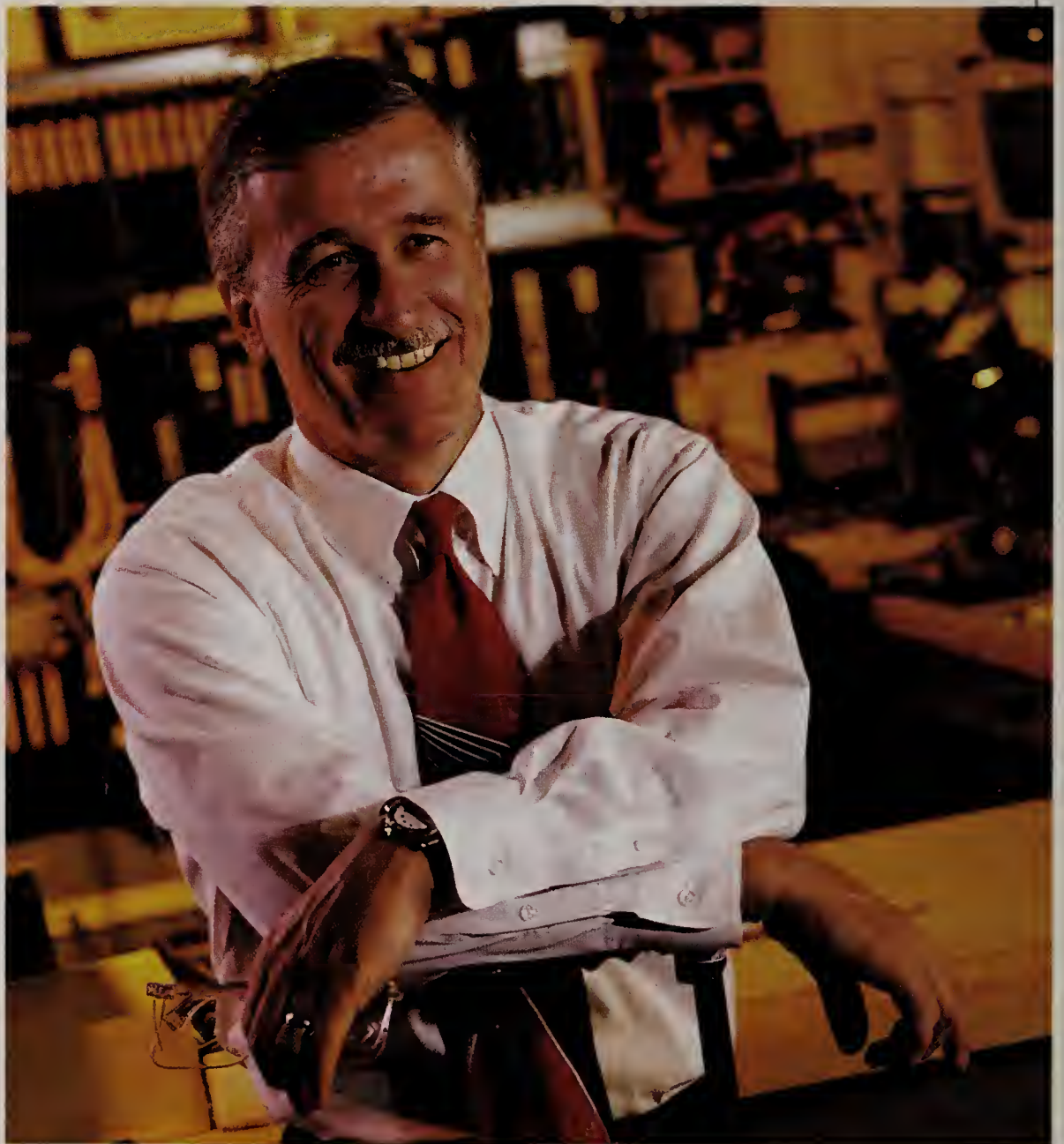
—Mark T. Bolton

You've got several good cards in your hand already. The first is the backing from your board of directors. I'd use that as a basis to form an IS executive council. But don't think of the executive council as the standard "steering committee." Use it

instead as a high-level organizational tool to turn objectives into action. Your business-unit council members should start by clarifying to their departments the nature and type of requests that it is important for IS to service, thus cutting down on time-wasting projects. Next, the council should look at the current IS workload and compare it with MMI's stated business objectives. Scrub whatever does not match.

And don't forget your IS staff. Can members recite the current business objectives and the resultant organizational changes? More important, does your staff support and understand the changes?

The technical standards you have implemented at MMI are also a big plus, since they are an important first step in guaranteeing interoperability



MARK T. BOLTON: *"Create a partnership mind-set between IS and your users."*



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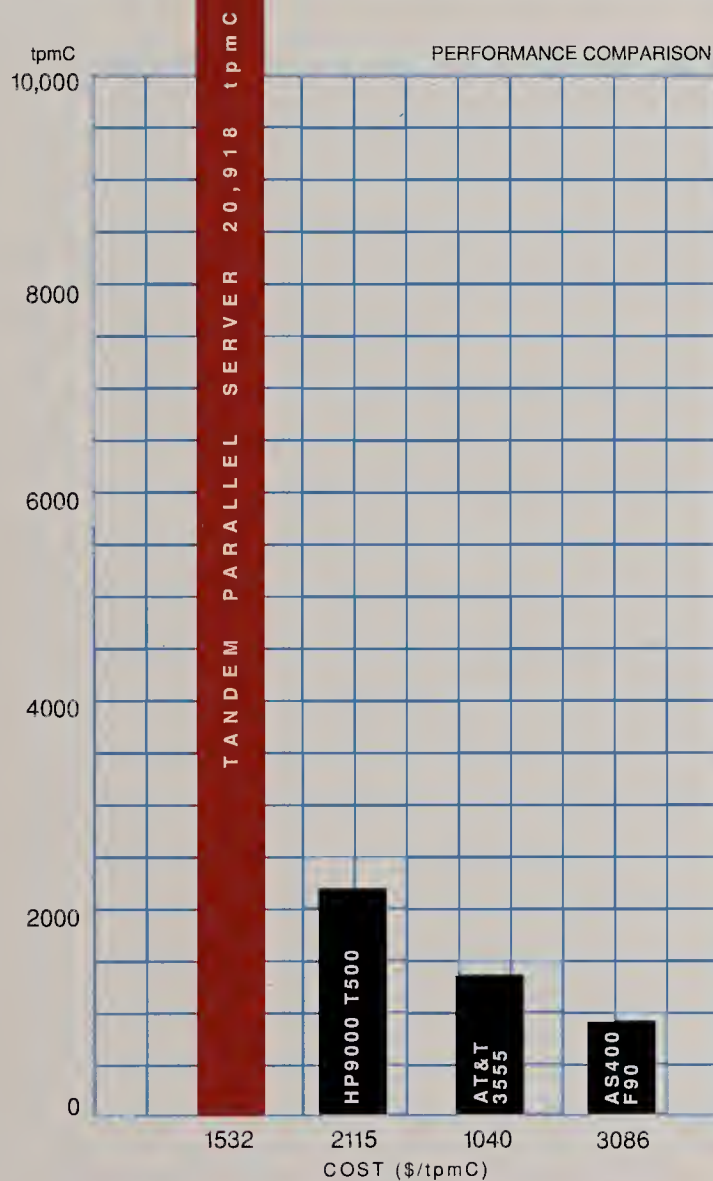
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in a distributed environment. It is equally important for IS to educate its new user partners about the standards because management and customer support can make enforcement easier. Make sure your users understand the benefits of standards and the hazards of inconsistent technical architectures.

Perhaps more important is the existence of a shared process that allows improvements to be made to technical standards. Establish a technical architecture committee comprising IS and business partners; I find that technical standards that come from a cross-functional team are more readily accepted and voluntarily adhered to than "IS" standards.

in order for your management to become comfortable with return on IT investments. In light of your company's emphasis on ROI from information technology, I think that MMI should retain a centralized acquisition system, and your idea to get even stricter with your procedures has merit. With the cost of processing one purchase request at between \$65 and \$100, planned purchases can be grouped together to reduce costs.

I recommend that you strengthen the budget-planning end of your acquisition process. You make a good start by providing examples of computer configurations and possible expenses. Next, build business and financial cases for planned technology

and external organizations, the pressure on IS to resolve ROI concerns will diminish, and your centralized IS department will find the necessary support to manage your new, decentralized organization.

William Walton, *vice president of distributed computing, Real Decisions (a Gartner Group company), Darien, Conn.*

I commend you, Mr. Linden, for your decision to examine current IT expenditures across all business lines. As organizational shifts and other future changes are implemented, this understanding of MMI's total cost of computing will serve as an important benchmark against which future cost levels can be compared. The involvement of your internal customers is not only necessary for the development of a total cost model but will benefit them too: The results will provide business-unit managers with valuable data regarding their operating units' local assets and costs. The model will also help you manage IT assets in your increasingly decentralized organization.

Although the right mix of centralized and decentralized functions will be unique to each organization, I recommend that you and your corporate staff maintain control of planning and architectural functions (including standards and new-technology assessment). IS should also maintain control over corporate data and applications.

One area that will have to move out to the regional offices, at least in part, is applications support. Increasingly, work processes and technology are becoming tightly integrated, and it is often difficult to separate support of the work process from support of the technology. The strong preference shown by users for local support is not simply a matter of convenience but a realization that local support (a local expert or dedicated IS support staff) understands both the technology and the work process. A central help desk that is separated from the user environment

Panelists' Findings

- Give users as much local power as possible so that IS can concentrate on creating an information infrastructure. One important area to regionalize is applications support.

- IS should establish data standards to ensure the consistency and accuracy of information across the corporation.

- Encourage a partnership mentality between IS staff and end users. Use an executive council to make sure that business-unit executives and IS staff are pulling on the same strategic oar.

- One place to involve users is in making changes to technical standards. Make sure that technical standards evolve from a cross-functional team for easier user acceptance.

- Strengthen the budget-planning end of the acquisition cycle by having the finance group create a preapproved list of planned acquisitions, thus streamlining the actual purchasing process.

- Develop a new CIO role as internal consultant and coordinator. Start by selling technical standards to users rather than dictating them.

Have the committee set and publish standards, and publish your process for changing a standard. Keep your customers informed about current technical standards and changes under consideration.

When your users fully understand the whys and wherefores of your technical standards, they ought to be less rebellious about your technology-acquisition process, which you appear to have in good shape. The total expenditures on technology should be given high-level visibility

acquisition during the budget-planning cycle. The finance organization could create a preapproved list of planned acquisitions that might include specific configurations and expenses by requester. All that remains would be the final financial approvals and purchasing execution.

The effectiveness of MMI's decentralized organization will, in large part, rest with your IS function, and partnership will be a key driver of your success. As you extend your partnerships deeper into internal



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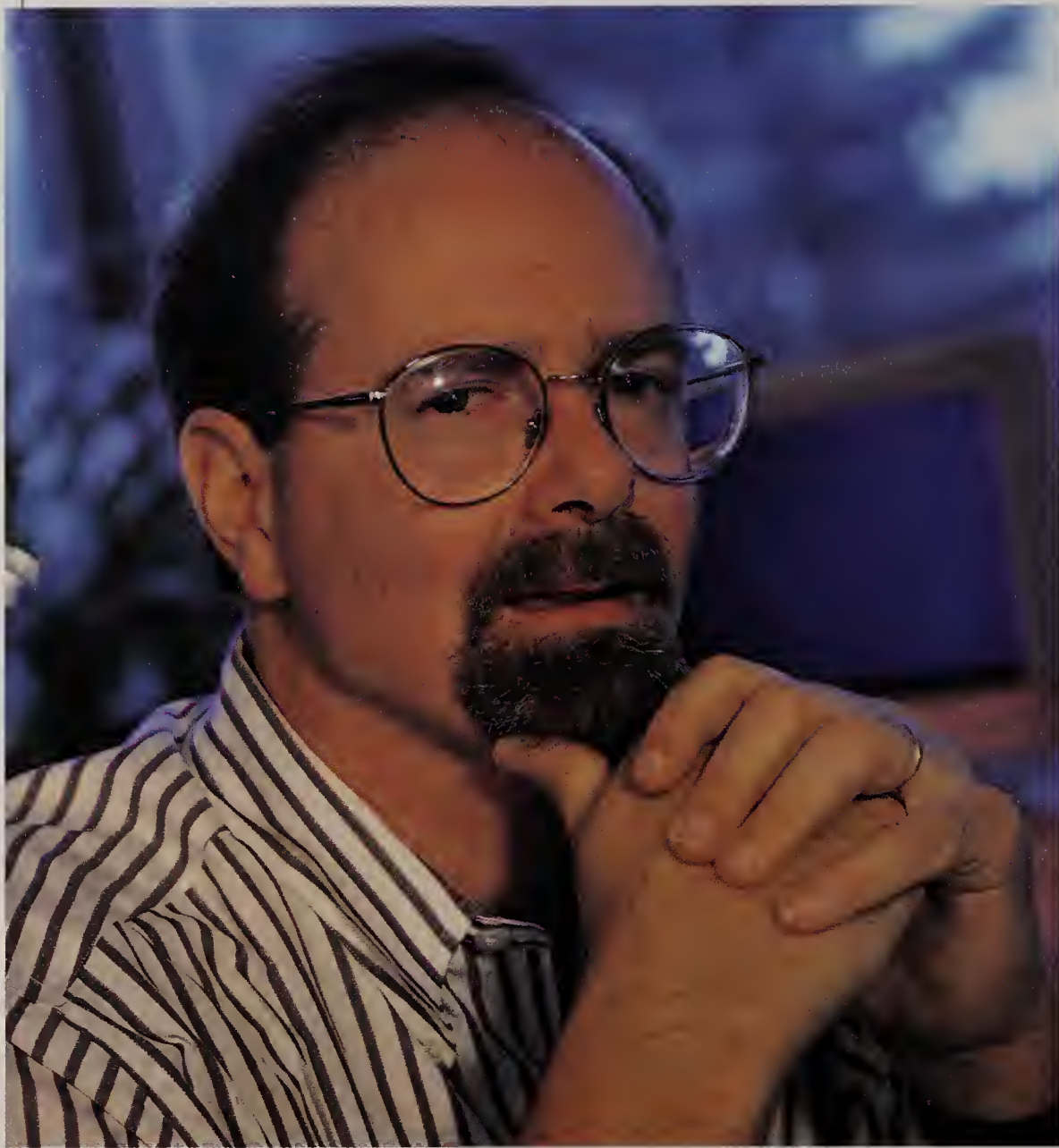
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WILLIAM WALTON: "Develop a new role for yourself as an internal consultant and coordinator."

will frequently be able to deal with the technology questions but lack the added dimension of understanding how that technology is applied specifically to a given work process. Our studies indicate that total support costs—formal support plus peer support—can be lowered by closely aligning support teams with the business units.

In addition to applications support, I recommend that you develop a total support architecture to accompany the technical architecture. Within most organizations, we find a multi-layered support structure with local and centralized elements, as well as formal and informal (peer) elements. In most instances this is appropriate, but unless there is close coordination between the support layers, it can also be very expensive. To avoid duplication of effort and resources while

also ensuring that expertise and learning are leveraged across the enterprise, your support architecture must deal with the vertical (corporate/regional/satellite) elements as well as the horizontal (cross-regional) elements. This architecture must clearly define the functions and responsibilities of corporate IS vis-a-vis the regional teams. You might want

to consider a franchise model: When new regional and satellite offices are opened, they would be given a standard technology infrastructure and an accompanying set of standard processes and procedures.

Mr. Linden, you'll need to develop a new role for yourself as an internal consultant and coordinator. In this role, you will assist with the tactical decisions that will now be made at the business-unit level. Your first challenge will be to sell rather than impose the standards and the segmentation of functions to the business units. The selling points should be not only cost but also increased functionality and improved service levels.

In regard to managing future spending, I recommend a joint budgeting process that includes IS and business-unit managers. This would address tactical as well as strategic-planning issues and establish corporate and operating-unit priorities. Budgeting for corporate-level projects would also occur in this forum. Business-unit teams could make local spending decisions independently, but only within the constraints of this budget and the technology architecture to which they have agreed.

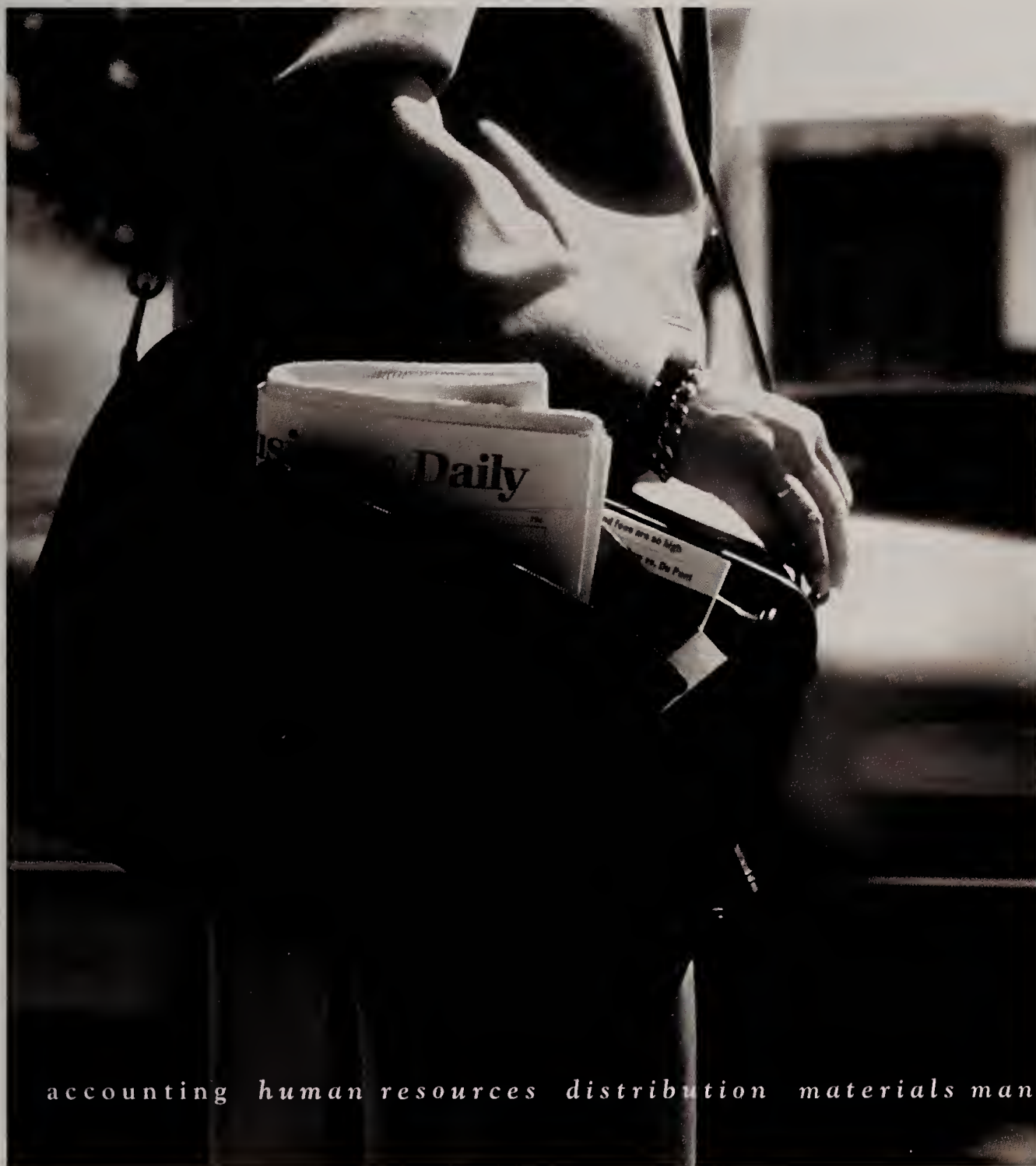
Finally, remember that the goal and the challenge of an architecture such as the one you are considering is to balance the efficiency-driven need for standards and conformance with the effectiveness-driven need for variation and innovation. As technology and business environments shift, so will the balance point between these two requirements. In other words, managing your different regions will require you to be comfortable with continual change. Good luck! **CIO**

EDITOR'S NOTE

Second Opinions takes real-life issues facing real-life information executives and presents them to a panel of experts—IS practitioners, consultants, academicians and non-IS executives—for evaluation and advice. While our revolving panel of experts cannot explore all the possible solutions in this limited space, we hope that by suggesting a few strategies, they may contribute to a better understanding of serious, common concerns. We plan to check back with our subjects to see how they chose to address the issue and to report on their progress. We invite our readers to offer topic suggestions and/or serve as case studies for future articles. Please contact Richard Pastore at 508 935-4435.

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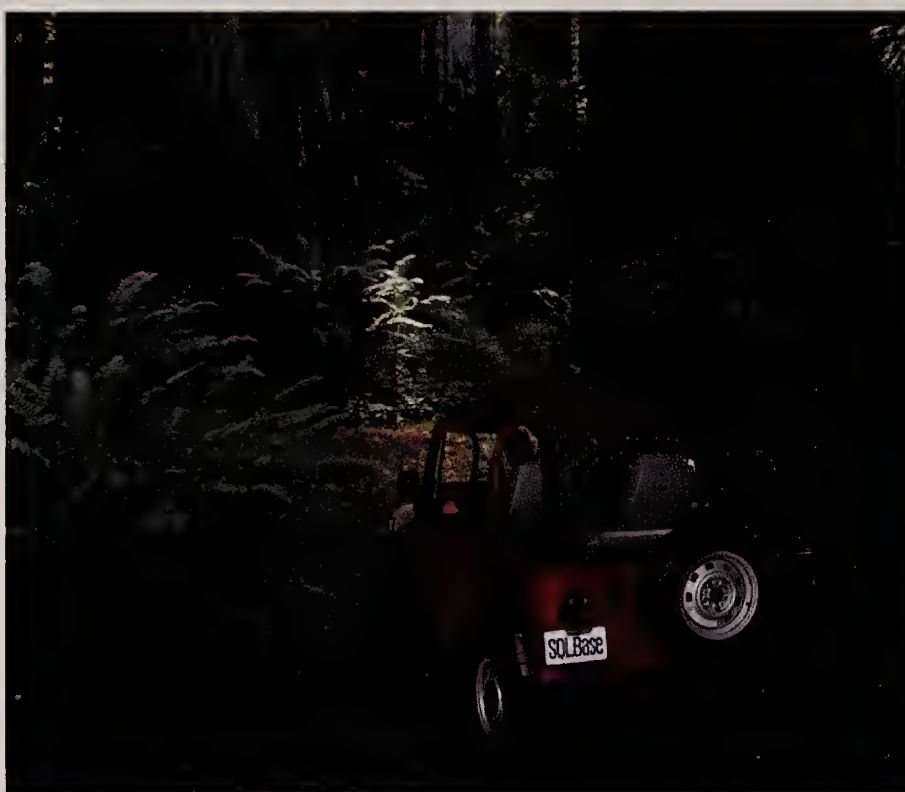
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A HIRE POWER

The success of Gallup's selection and development practice depends on its ability to quickly and accurately tap years of expertise.

A new strategic system and a client/server environment provide the means.

BY MEGAN SANTOSUS

THANKS TO public-opinion polls encompassing everything from Franklin D. Roosevelt's New Deal to Bill Clinton's health-care reform, The Gallup Organization enjoys the kind of name recognition even money can't buy. That's a big reason Selection Research Inc. (SRI) adopted the Gallup name when the two organizations merged in 1988.

Popular opinion notwithstanding, polling accounts for only a small portion of The Gallup Organization's overall business today. In addition to providing survey market research, training seminars and leadership-education programs, the Lincoln, Neb.-based company has quietly been helping a diverse roster of corporate clients get a better handle on one of the most pressing organizational challenges:

how to hire the right employees and help them progress throughout their careers.

"Our mission here is to help our clients understand what makes successful employees...", says Senior Vice President Richard Harding, speaking of the company's selection and development practice. "One essential way of establishing productive environments is to make sure that people are in jobs for which they are well-suited."

According to Gallup's way of thinking, organizations can achieve lasting excellence only by hiring individuals with talents that complement their distinctive corporate cultures. Gallup helps them do this through structured, customized interviews featuring open-ended questions designed to highlight a candidate's innate talents. Clients base their hiring decisions on how well those talents match up with



CRAIG NORDBROCK: *"We took a long-term view in automating the company so that we could grow the way we want to."*

the predefined skills required for a specific position.

The selection and development (S&D) practice lives and dies on the data it has accumulated over more than 25 years in the business. Until about four years ago, all that data was gathered, managed and shared with little in the way of information technology. That changed with the arrival of Craig Nordbrock, the current director of network technologies who was hired to guide the implementation of a client/server-based network that would enable Gallup to leverage its years of research and share information throughout the company.

Donald O. Clifton, Gallup's chairman and the founder of SRI, was

aware of the need to develop some kind of system for the S&D practice early on, yet it took a while for things to get moving in the right direction. "My knowledge of technology is very limited," Clifton admits. A contractor was hired to do some programming for a system, but according to Clifton, he "spent most of his time concentrating on what he already knew instead of trying to figure out what we needed to do." To get on track, it was necessary to make some personnel changes. "I knew that if we didn't do something, we'd find ourselves out of business one day and not know why." The consultant was out, and Nordbrock was in.

"We wanted to use technology to

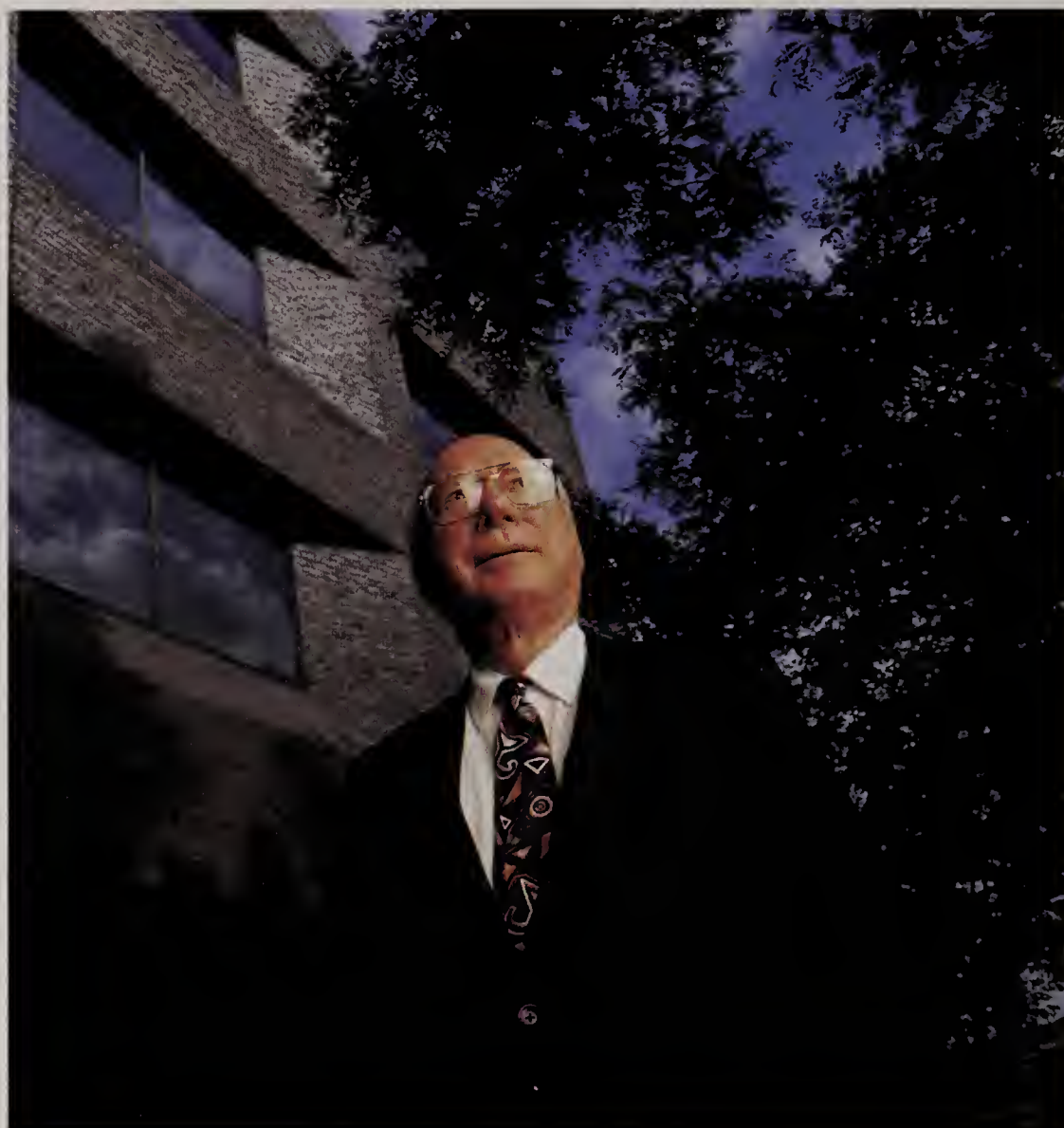
help us get better at what we do so that we can help our clients make better decisions," says Harding. Nordbrock was part of a cross-functional committee charged with looking at how IT could help Gallup fulfill its long-term strategic direction as well as its more-immediate needs of managing all of the data generated by the S&D service. The overriding goal was to develop an infrastructure that would support what Clifton calls the "Gallup brain," in which information and knowledge are shared around the world and years of expertise can be easily tapped.

Client/server technology was seen as the best architecture because it would make information accessible to

the approximately 2,000 Gallup employees dispersed worldwide, and it would be scalable to accommodate additional computing needs. "We took a long-term view in automating the company so that we could grow the way we want to," Nordbrock says. "In doing that, we had to consider such issues as scalability, integrating multiple servers at multiple locations and using easy front ends because most people had little or no computer experience."

THE IMMEDIATE needs of the S&D practice were significant. The practice had its genesis in research Clifton started more than 30 years ago. As an educational psychologist at the University of Nebraska, he was interested in finding out why some people thrive in jobs while others—even those with similar backgrounds and experience—flounder. "He found that successful people share certain characteristics that can be objectively measured," says Harding. These characteristics, or themes, as they are referred to at Gallup, form the basis of the S&D practice (see related story, Page 49).

Clifton's staff has developed 15,000 questions around more than 200



DONALD O. CLIFTON: "I knew that if we didn't do something, we'd find ourselves out of business one day and not know why."

wide-ranging as priests and truck drivers. Tens of thousands of candidates have been interviewed over

clients," explains Clifton. "The most valuable questions are those which have been asked consistently for years. When a history of answers accumulates for a particular question, that question will increase in value." Gallup needed a better way to compare, track and stratify its large quantities of statistical data.

Developing a customized interview is a labor-intensive process. "To get the 50 or so questions for the field interview, we'd test 200 in a pilot," says Harding. "We have some questions that have been asked in more than 300 interviews, but we couldn't look at the statistics quickly to see if they were good questions." To find that out, analysts had to sift through old interviews, pull out all of the data on a particular question and generate reports of summary statistics. Harding estimates that it may have taken as many as 100 hours to develop an average interview.

Consequently, the data was as good as forgotten for many purposes that

"We used to get paid for our sweat, but now we're getting paid for our brains. We can be a lot more effective to the people who pay our salaries."

—Richard Harding

themes since he founded SRI in 1969. Judging from the client list, good help is hard to find in practically every industry. Taco Bell Corp. uses customized interviews to select front-line managers while the Cleveland Cavaliers basketball team looks for help in selecting draft picks. Theme-based interviews have been developed for positions as

the years, creating a wealth of statistical data that Gallup uses to validate its findings.

With paper-based archives and a clunky database system keeping track of candidates, Gallup was lucky to get anything out of its historical data. "Our business is all about asking questions, getting answers and organizing the data in ways that help our

required detailed analysis. "We lost a lot of information because we couldn't get it sufficiently organized so that we could use it," Clifton recalls. "We needed to develop some kind of system that would stop us from losing our memory all the time."

Nordbrock spent a lot of time meeting with end users, consultants and vendors, as well as with organizations that were more technologically advanced than Gallup. "We may not have had much experience with technology," Nordbrock says, "but after talking with other companies, we became very good at making decisions about technology."

IMPLEMENTATION began with Nordbrock and his staff of network and systems administrators first constructing a client/server architecture consisting of Windows-based PCs, Sun Microsystems and Hewlett-Packard servers,

and a Banyan Vines LAN. With the infrastructure in place, programming on customized applications began.

In July 1992, Steve Fisher, president of LAN Design Inc., a consultancy in Colorado Springs, Colo., was brought in to help with SQL Windows programming; he's been a fixture ever since. "Some people think automation is going to save them a million dollars," he says. "Here the expectation was to provide more-reliable data faster, add more capabilities and grow without adding people."

The first two applications developed were Item Analysis, an Oracle-based system that allows for easy access to data, and a calendaring system known as ESP.

Item Analysis has vastly improved the process of developing interviews, according to Harding. "We now have a system where we can get information on thousands of questions very quickly," he says. "This helps us be

better at meeting the specific needs of clients because we spend less time gathering data and more time analyzing it." It also helps Gallup document the validity of its interview processes for legal purposes (see related story, Page 52).

Item Analysis currently contains about half of the 15,000 selection questions, with the remainder scheduled to be entered by year's end. "Instead of guessing how appropriate a question will be for an upcoming interview, we now have a detailed history of it, which really helps speed up and improve our validation process," says Mary Dittenber. Dittenber uses Item Analysis on behalf of the 10 analysts who develop the interviews; for security reasons, access to the system is strictly limited.

Item Analysis has decreased the number of questions required to test a survey from over 200 to an average of 125. That's because Dittenber

Picking the Winners

.....
The interviews Gallup develops for its clients evaluate candidates' suitability for both a particular job and the organizational culture

The interviews created by The Gallup Organization's selection and development practice are as individual as the culture of its clients. That's why the process begins by meeting with clients to develop a successful candidate profile. Let's say that a financial-services company is looking to hire salespeople. "We'll ask our client to give us the

names of the salespeople that they would like more of," says Senior Vice President Richard Harding. "We'll get those people together in a focus group to talk about the things they like—and don't like—about their jobs."

The focus group generally consists of 60 people, about half of whom are considered top performers by management. Analysts from Gallup with backgrounds in social science and psychology listen to tape recordings of the discussion to determine the themes that separate the successful salespeople from the rest of the pack.

Courage, for instance, "which we define as the ability to increase persistence in the face of resistance, is a consistent theme among the most successful salespeople," explains Harding. "Outstanding salespeople don't like it when someone doubts them, and they will typically respond by trying harder." Other themes might include ego drive, communication and competition.

Once the themes are identified—there may be 10 that are significant—analysts get to work developing the interview by selecting or writing questions that are designed to draw them out. To gauge a candidate's courage, for example, analysts might pose a question such as: How do you feel when someone doubts what you have to say?

A pilot version of an interview is developed and tested. Biased or otherwise inappropriate questions are weeded out, and a field version consisting of 40 to 80 questions is ready to go. All interviews with prospective candidates are conducted over the phone, with the majority administered by Gallup's trained staff. The interviews are recorded and transcribed, after which the analysts evaluate the responses and develop predictive profiles of each candidate. They then offer hiring recommendations to clients based on the results.

—M. Santosus

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Article I
Section 1. All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

Section 2. The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

No Person shall be a Representative who shall not have attained to the Age of twenty seven Years, and seven Years a Citizen of the United States, and who shall not, when elected, be an Inhabitant of that State in which he shall be chosen.

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years and including Indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and in every subsequent Term of ten Years, in such Manner as they shall by Law direct. The Number of Representatives shall not exceed one for every thirty Thousand, but each State shall have at least one Representative, and until such Enumeration shall be made, the State of New Hampshire shall be added to those three, Massachusetts eight, Rhode Island and Providence Plantations one, Connecticut five, New York one, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina six, and Georgia three.

Section 3. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for a Term of Six Years; and each Senator shall have one Vote.

I Immediately after they shall be appointed in consequence of the first Election, he, she or it who shall have been elected by the People of the said State, and if no more of that number of the said Electors shall be vacated at the Expiration of the second Year of the second Step at the Expiration of the fourth Year, and if no more of that number shall be vacated at the Expiration of the sixth Year; so that there shall may be chosen every second Year; and if Vacancies happen by a Resignation, or otherwise during the Term of Appointment of any elector, the Committee thereof may make temporary Appointments until the next Meeting of the Legislature which shall then fill such Vacancies.

The Vice President of the United States shall be President of the Senate, provided he shall have no Vote, unless they be equally divided.

The Senate shall choose their other officers, and also a President pro tempore, in the absence of the President of the United States.

That Senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. And the Chief Justice shall preside. And no Person shall be convicted without the Concurrence of two thirds of the Members present. Judgment in Cases of Impeachment shall not extend further than to removal from office and disqualification to hold and enjoy any office of honor or trust under the United States: but the Party convicted shall nevertheless be liable and subject to civil and criminal Proceedings according to Law.

Section 4. The Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of choosing Senators.

Section 5. Each House shall be the Judge of the Elections, Returns and Qualifications of its own Members, and a Majority of each shall constitute a quorum to do business, and may be authorized to compel the Attendance of absent Members, provided

Station. 5. Each House on each day of the Session to do Business, but a smaller Number may adjourn from day to day, and may be an hour, or more, and such Minutes, and under such Penalties as each House may provide.

Each House may determine the Rules of its Proceedings, and from time to time publish the same, excepting such Parts as may on their Judgment require Alteration.

Senary; and the Yeas and Nays of either House on any question shall at that time be taken in the presence of the other House, during the session of Congress, shall, without the Consent of the other, adjourn for more than three days, nor to any other place.

Then that in which the said House shall be sitting
 Section 6. The Senators and Representatives shall receive a Compensation for their Services to be ascertained by Law, and paid only in Money of the United States. They shall in all Cases except Treason, Felony and Breach of the Peace be ineligible from Office during their Absence as the Officers of their respective Houses, and in going and returning from the same and for any Speech or Debate in either House they shall not be questioned in any other Place.
 No Senator or Representative shall receive the Compensation for which he was elected or appointed to any civil Office under the Authority of the United States while he continues to serve in either House, and no Person holding any Office under the United States shall receive the Compensation for which he was elected or appointed to any civil Office under the Authority of the United States while he continues to hold such Office.

which shall have been created, or the Commodore to whom it shall have been increased during such time, and no other, nor any other officer or person, shall be a Member of such House during his Continuance in office.

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can more easily put her finger on the most successful questions by performing word searches, doing what-if scenarios and getting an aggregate of all the statistics broken down by theme, question or interview with the touch of a button.

"Analysts can come to me and ask for the history of a question they are interested in," says Dittenber. "I can pull up the historical statistics and



MARY FULLER: Gallup's old card-based tracking system was time-consuming to use.

predict the results of a particular question in an interview." Previously, such an effort would have been too time-consuming, if not impossible, to do. As a result of streamlining the pilot process, Gallup has eliminated about 30 hours of work.

The time it takes to develop an interview has been cut from roughly 100 hours to about 60. With an average of four new interviews developed every month, that's a tremendous boost in productivity. "The development and analysis time is very expensive for us," says Clifton. "We're now able to rifle the questions for our clients rather than take a shotgun approach, and this kind of accuracy saves us money."

It also helps Gallup's analysts spend more time working with clients than tracking down data. "We used to get paid for our sweat, but now we're getting paid for our brains," says Harding. "We can be a lot more

effective to the people who pay our salaries." And Nordbrock sees an opportunity to offer more products and services. Fine-tuning the data, for example, will allow Gallup to identify themes by industry and function.

Because of the strategic nature of the data, security is a big issue. Only four senior people have total access to the system, but plans are in the works to give limited, read-only access to analysts. "The data is worth millions of dollars and is very critical to our company," says Harding. "It gives us the edge over the competition, so we have to protect it."

ESP, the other new system, is an

Oracle-based calendaring system used to schedule interview appointments and keep track of candidates. Previously, support personnel spent a lot of time fielding calls from clients who wanted to know the status of candidate interviews, according to Mary Fuller, a project manager who helped build the system. "We kept candidate information on cards...in boxes, and a lot of time and effort was spent trying to answer [those queries]," she says.

Scheduling interviews was an error-prone and inefficient process. Schedulers recorded appointments with an average 3,000 job candidates

Legal Ease

Gallup's new systems make it easier to defend against claims of unfairness

Steven O'Brien's job is a lot easier because of the client/server-based Item Analysis system. As vice president and general counsel for The Gallup Organization, O'Brien relies on the system to prove that questions asked in the selection and development interviews are fair and nonbiased. The ability to quickly compile historical statistics is particularly helpful when responding to complaints lodged with the Equal Employment Opportunity Commission (EEOC).

According to O'Brien, employee litigation is burgeoning. "We are helping companies select people to fill positions," he says. "A recommendation not to hire someone can be based on our interviews, so in that respect, we're right in the firing line."

Although Gallup weeds out any questions that discriminate based on age, sex or race during the pilot phase of an interview, candidates who do not understand why a particular question was asked might complain about its validity. With Item Analysis, "we can show how certain answers are predictive of a particular job in a particular industry," O'Brien says. "We [are] able to...back it up with historical statistics."

And those historical statistics are now available at the touch of a button. Previously, if a disputed question appeared in 27 different interviews, for example, each interview would have to be pulled from the archives and all the statistics would have to be manually compiled. Now, says O'Brien, when "an investigating officer from the EEOC [inquires] about a complaint..., we can put together a formal response quickly." Typically, the EEOC requires a response within 30 to 45 days after initial notification, but Gallup no longer needs that kind of time. And such speed, says O'Brien, enhances Gallup's credibility. "Being able to draw on 25 years of research in a single keystroke makes my life a lot easier."

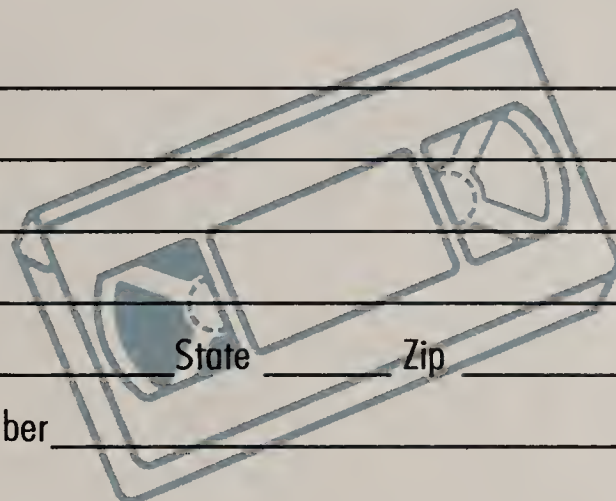
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a month by manually logging them into notebooks assigned to specific interviewers. Notebooks were sometimes misplaced, and scheduling conflicts could arise. Moreover, there was no reliable way to track whether interviews actually took place or recommended candidates were hired; this led to inaccuracies in billing.

With ESP, schedulers now make

billed accurately and on time.

Nordbrock and his 10-person IS staff are keeping busy with several more projects. Fisher is still on hand working to integrate elements of Item Analysis with ESP that will allow interviews to be scored on-screen, with results compiled in real-time. Nordbrock is off to London soon to link that office to the



RICHARD HARDING AND MARY DITTENBER say the new data-access system has improved Gallup's interview-development process.

appointments onscreen. They can quickly see who is available for an interview, and once appointments are made, an E-mail message automatically notifies the interviewer. "Milestone" information—such as if the candidate was supposed to call in or wasn't home at the time of the interview, or that the interview was completed on time—is logged into the system and is available to clients via E-mail. Recent enhancements to the system include improved graphics and extended note fields. Both Fuller and LAN Design Inc.'s Fisher are currently working on integrating ESP with billing so that clients are

network and make ESP accessible; Lotus Notes is being evaluated for worldwide deployment to facilitate the sharing of client data.

And now that end users have gotten a taste of IT, they are constantly looking for more functionality. ESP is being used for a large project in the polling service, and Nordbrock anticipates that the use of IT will spread to other Gallup services as well. For Nordbrock, all this activity is gratifying, if hectic. "Four years ago we didn't have anything," he says. "Now the network and Item Analysis are really critical to achieving the vision of the company." 

TECHNICAL PROFILE

The Gallup Organization, headquartered in Lincoln, Neb., is an employee-owned company that was formed in 1988 following the merger between The Gallup Organization of Princeton, N.J., and Selection Research Inc. of Lincoln. Approximately 1,500 employees work at nine regional offices across the United States, with another 500 employees in 25 offices around the world. Revenues are about \$100 million annually. In addition to its famous public-opinion polls, Gallup offers a variety of services including market-research surveys, quality audits, employee-selection and -development interviews, leadership training, management-development seminars and employee-opinion surveys.

Hardware: Approximately 450 Gateway 2000 and Compaq Computer Corp. PCs are networked at the Lincoln headquarters. Servers from Sun Microsystems Inc. (SPARCserver) and Hewlett-Packard (HP 3000 and HP 9000) are located in Lincoln; Atlanta; Princeton, N.J.; Rockville, Md.; Omaha, Neb.; and Austin, Texas. Xerox DocuPrint and Xerox Color PostScript high-volume copier systems are linked to the network at the Lincoln headquarters via a Sun SPARC print server. Cisco Systems Inc. routers provide the link between Lincoln and regional offices. Sites in London and Costa Rica are scheduled to be networked this fall.

Software: Packaged software running on the Microsoft Windows-based PCs includes Microsoft Office and SPSS Inc. statistical software; data-access tools include Forest & Trees from Trinzic Corp. Gupta Corp.'s SQL is used to develop front-end Windows applications. The Oracle-based ESP and Item Analysis relational database systems are used by the S&D practice and were developed in-house. Eighty people use ESP while full access to Item Analysis is limited to four people.

Communications: An Ethernet backbone and a Banyan Vines LAN link the machines in Lincoln; regional offices run Banyan Vines LANs and are linked to headquarters via frame relay. Dial-up access with the London office is available via Lotus Development's cc:Mail. Internet access is available via a Sun SPARCserver.

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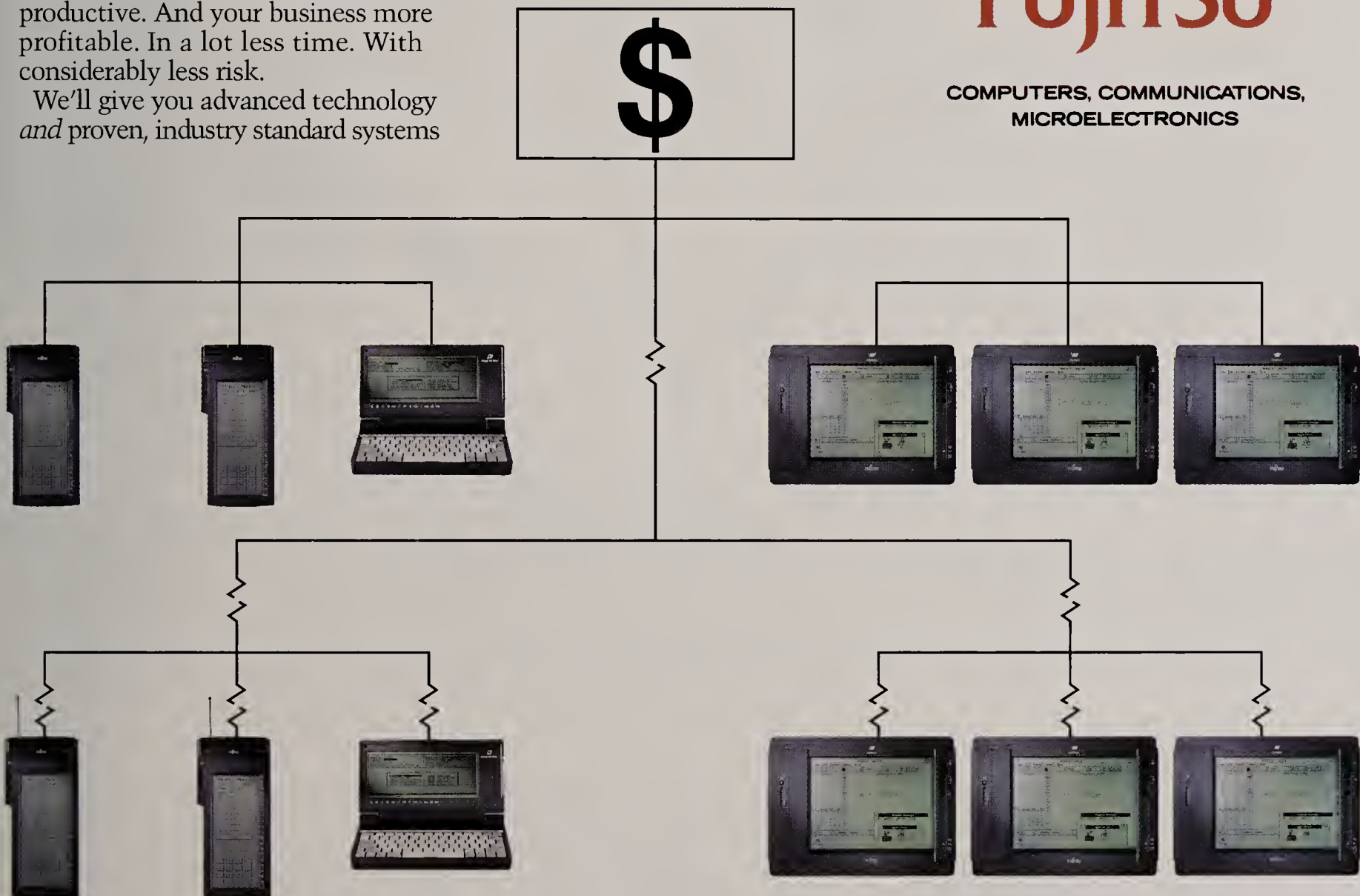
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But companies can reduce their anxiety, along with their risk, by carefully managing the outsourcing process and keeping the duration of their contracts short, as two of the three tales that follow demonstrate. Esprit de Corp. facilitated its move to client/server by outsourcing responsibility for its mainframe systems. Vice President of Systems Peter Bates meticulously calculated his costs, stuck firmly to his requirements and selected a vendor that—while small in size—was willing to prepare exhaustively before assuming control. Now Bates expects to save a significant sum during the transition period and even more when it is over.

Energy producer Freeport McMoRan Inc. (FMI) discovered the very real risks of outsourcing when changing business requirements led it to walk away from what it concluded was a too-limiting contract with Electronic Data Systems Corp.

(EDS). Now FMI has turned to a leading worldwide consulting organization for an outsourcing pact that will help it move to client/server operations, provide business-management expertise and, most importantly, give needed flexibility. (For example, in response to changing conditions, FMI can add and delete staff and can even bring in additional vendor partners.) The arrangement, according to CIO Michael J. Arnold, is more like a business relationship than a contractual one, and the company has reserved the right to change vendors or even bring the business back in-house.

The final tale is one of an outsourcing road not taken. Bell Communications Research Inc. (Bellcore) mounted a five-month study to see if it could save money by outsourcing its entire Unisys-based operation. The result: Outsourcing proved to be the more-expensive option. The process of benchmarking and documenting its operations was time-consuming, but it saved the company from an outsourcing misstep and taught it a few lessons in the process.

Outsourcing is growing in popularity: A recent Forrester Research Inc. study of 50 healthy Fortune 1000 companies showed that 72 percent were using external firms to augment their internal IT capabilities, and 62 percent viewed those arrangements as successful. The payoff clearly is there for organizations willing to do what it takes to stack the odds in their favor.

Low Anxiety

Ceding control of any part of your systems will never be risk-free, but companies that take tight control of the process can stack the odds in their favor

BY MICKEY WILLIAMSON

Profit in Preparedness

Esprit

ESPRIT DE CORP.'S decision in 1993 to make the transition from systems based on an ancient IBM Corp. mainframe inspired the company to call in outsourcers, says Peter Bates, vice president of systems for the San Francisco-based purveyor of apparel for young women and children. The old 3090 Model 200 was obsolete, inflexible and incapable of running most current software. Changing systems to accommodate a new product line could take nearly three workyears, so rapid response to changing market demands was out of the question. A Unix-based client/server architecture running on IBM RS/6000 computers would give the IS department, and hence the whole enterprise, the flexibility required to maximize competitiveness, Bates reasoned.

Fully aware of the difficulties inherent in such a transition, Esprit's IS chief wanted to focus his department's attention on the new environment, with client/server training from the ground up for all U.S. personnel. (Six of Esprit's 40-member U.S. systems staff resigned rather than face retraining; the company's European and Asian operations run on AS/400s.) When training is completed, the staff will select packaged software to customize or build what can't be bought. Bates expects the resulting systems to save the company \$1 million per year in operating costs. He also expects savings of 10 percent

during the first two years of a multi-million-dollar outsourcing contract with Software Maintenance Specialists (SMS) in Santa Ana, Calif.—and even more should an additional year be needed.

When choosing his vendor, Bates had several firm requirements. Most important was that the cost of outsourcing could not be greater than the cost of running the IS function in-

house. "We weren't willing to pay a premium for relief," he says. "The bottom line had to make sense." To ensure he was on financial firm ground, Bates included every conceivable factor in his calculation of current costs, down to the amount of power consumed when computers run.

Esprit spent roughly 18 months evaluating outsourcing vendors. After narrowing down the field from nine to six, it sent those vendors that made the first cut tapes of systems-measurement facility files provided by the mainframe operating system. These log files gave prospective vendors a full accounting of what Esprit demanded of its system and how the system re-

"We weren't willing to pay a premium for relief. The bottom line had to make sense."

—Peter Bates



PETER BATES calculated every cost, down to the amount of power consumed by computers.

PHOTO BY CINDY CHARLES

sponded. Vendors were told that their systems must at least match Esprit's in performance.

One-second response time was another minimum requirement. In addition, overnight batch processes from Esprit's San Francisco office and 17 retail outlets need to be completed before the company's New York showroom opened the following day, at which time control is turned over to online-transaction-processing systems.

Bates solicited proposals from out-sourcers ranging in size from EDS, with more than 70,000 employees, down to 100-person SMS. Bates says he invited SMS because of several recommendations from people in the outsourcing field, including a competing vendor that had been eliminated from consideration and a former employee of another outsourcer. Vendors were asked in to observe Esprit's IS operations. SMS was outstanding, he says, in its attention to detail, a factor that overcame any possible objections related to size.

The SMS proposal "made sense to us, and it did save us money over a two-year period," Bates says. "If our transition should go longer than two or three years—God help us—the savings become very substantial over what it would otherwise cost us to run our own operation."

Over some 10 weeks, SMS committed between three and five work-months to making sure its employees understood the Esprit operation, documenting the company's procedures, run books and system-dependency charts more thoroughly than the IS staff itself had done, says Bates. Before taking control of Esprit's mainframe operations, the outsourcer ran one of the company's daily cycles over and over again, exercising application systems one at a time until they ran flawlessly. Interviewed two days into the cutover from the 3090/200 to SMS's more-modern mainframe, Bates says the process "hasn't been painful at all." Despite minor glitches, the outsourced system was available to users in New York four hours ahead of schedule. "It's basically a no-prob-

lem transition. I'm sure that sometimes these things can be disasters."

Bates instituted one policy to which he ascribes much of the cutover's success. Emulating the common practice in manufacturing plants of allowing any worker to shut down the assembly line if a quality problem

arises, he empowered the applications staff to sign off on execution of the systems for which they were responsible. "Any one of them could have stopped the transition," Bates says. Instead, the staff has responded with enthusiasm. "They feel they have a lot to gain," he reports. ■

A Business Relationship

Freeport McMoRan

WHEN FREEPORT McMoRan Inc. (FMI) was looking for an outsourcer in 1988, the company was undergoing its second period of enormous change. The first round of changes had created a diversified enterprise in the wave of mergers and acquisitions that characterized the 1980s. The second brought the New Orleans-based company back to its roots in mining and energy production. It also led FMI to seek an outsourcing relationship in which one of the primary requirements is flexibility.

It was the discovery of huge deposits of copper and gold in Indonesia that brought FMI back to its core business. The addition of a large sul-

fur deposit in the Gulf of Mexico underscored the point that FMI needed to divest itself of some nonmining business units in order to raise capital. Fertilizer companies, oil and gas companies, a geothermal business on the West Coast and several other businesses were sold to raise capital for developing the new mineral finds. "Once those discoveries were made, our [IS] needs shifted very much. We needed to aim at fewer targets," says Michael J. Arnold, FMI's CIO and controller of operations. "All of our systems and telecommunications needs changed dramatically."

With most of its business activity shifted to a remote island in Indonesia, telecommunications grew in importance. Also, Arnold says, the company needed to "have the ability to purchase, ship, receive, store and issue almost a billion dollars a year of capital and operating materials and supplies." Purchases ranged from truck parts to food supplies. Vendor information, order status and logistical details were of paramount importance.

Project cost accounting, as well as operation and production cost analysis, also gained in significance. As if all this weren't enough of a challenge, FMI had also decided to move as much processing



MICHAEL ARNOLD: *Curing the training headache.*





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as possible off the mainframe and onto mid-range computers.

With so much going on and a strong desire to focus on developing FMI's newfound mineral resources, outsourcing was a logical step. FMI first signed a 10-year agreement with EDS, but it canceled that contract in 1992. In '93 the company began moving mainframe production systems to a Hewlett-Packard Co.

**"If ever we feel that
someone else is uniquely
qualified, we have the right
to select another firm or
group of individuals
to do the work."**

—Michael J. Arnold

HP9000 mid-range machine and turned IS operations over to IBM's Integrated Systems Solutions Corp. (ISSC); telecommunications were assigned to CompTech Inc., a New Orleans firm. For aid in application development, maintenance and client/server technologies, FMI turned to Andersen Consulting, the Chicago-based systems integrators. Andersen also provides business-management services to the company.

A highlight of the Andersen relationship is the requirement for consummate flexibility, Arnold says. He foresees another round of rapidly changing development needs as a recently acquired European copper-smelting plant ramps up.

Now, Andersen has responsibility for supplying additional labor. "When we need special technical skills or skills in a different part of the world, it's easier to turn to [an outsourcing] firm than to do your own hiring," Arnold explains. "We don't have the responsibility or the headache of training in the new technical environments and new toolsets."

Cost reduction was not the prime mover here, nor can Arnold break out the exact savings attributable to a single business arrangement. But

he expects that "over the last two years, we will have cut our costs in half." Much of those savings come from moving off the mainframe; in addition, corporate IS has shrunk to seven staff members and contractors from about 85 in 1988. Most of the original staff have moved to the outsourcers. Those who remain concentrate on managing relationships with the outsourcing vendors, developing additional outsourcing strategies and overseeing quality control.

Arnold describes the five-year arrangement as "a business relationship, rather than a contractual rela-

tionship." While he can't envision the circumstances under which FMI would want to take any of the work back in-house, if that happened it "would not be a contractual issue, because we have discussed that. If ever we feel that someone else is uniquely qualified, we have the right to select another firm or group of individuals to do the work.

"We certainly would give Andersen the opportunity to propose on it, but we always have reserved the right" to take business away from the vendor, he says. "And that could include doing it in-house." ■

The Road Not Taken

Bell Communications Research Inc.

NOT EVERY COMPANY can reduce costs by outsourcing IS. Senior management at the Livingston, N.J.-based Bell Communications Research Inc. (Bellcore) found that out after an exhaustive study that management considers well worth the investment. Cost savings were the goal in January 1993, when the R&D company, which serves all seven regional Bell operating companies (RBOCs) and their subsidiaries, set out to explore outsourcing the operation and support of its Unisys data center. Heading up the study was Carol Chory, a technical planner based in Piscataway, N.J., who was joined by a member of the purchasing department. Before long, the two decided they needed a consultant's help. They considered two firms: One offered telephone consultation only; the other would place staff on-site for the duration of the inquiry.

That firm provided Bellcore with a generic request for outsourcing proposals, which Chory tailored to fit Bellcore's needs. The consultant also

suggested some outsourcers to add to the list provided by Bellcore's purchasing department. RFPs were sent to 11 companies. Only one responded.

Chory cites several reasons for the poor response. Unisys is a highly specialized environment, and not many outsourcers have the requisite expertise. Bellcore would require the vendor to purchase the Unisys hardware, including an \$8.5 million system that the company had recently acquired. And Bellcore specified a five-year contract, as opposed to the seven- to 10-year industry standard for data-center operations. Since Bellcore expects the systems running on the Unisys machine to last for only five years, the contract's duration was not negotiable.

Other requirements included 99.8 percent availability, a hot line to handle a given number of calls within a specified period and three-second online response time. According to Chory, many vendors said that the allowance for the outsourcing company's profit margin was insufficient.

Chory and her partner decided to



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CAROL CHORY: *After an extensive study, Bellcore found that outsourcing was the more expensive option.*

evaluate the single response. Because financial advantage was the prime motivator, the finance department was asked to aid in the analysis. The team developed a pro forma budget that removed all costs outsourcing would eliminate, such as personnel, equipment and floor space. The biggest savings would come from personnel and other direct costs, hardware and software costs, and depreciation.

The analysis team also calculated a unit cost of operation that included the cost of equipment and personnel, and compared it with the outsourcing vendor's unit cost. "When we put the budget together with [the outsourcer's] fee, outsourcing turned out to be more expensive," Chory

says. The same was true of the unit-cost approach. With some trepidation, the team presented its recommendation not to outsource to senior management at the end of July 1993.

Looking back, Chory thinks the response would have been better if vendors were given more time. The RFP went out June 4, 1993, with a return deadline of July 6. Also, Bellcore might have attracted more interest with a preliminary mailing to potential vendors. "If we had it to do over, we would start with a request for information instead of going straight to the RFP," Chory says. "That way, we'd probably get more responses."

With all the effort involved in the outsourcing study, the question of whether the investment was worth-

while inevitably arises. According to Michael Turner, executive director of Unix/Unisys computing technology, the project consumed just under 15 workmonths on the part of Bellcore personnel (including himself) and the consultant. Still, Turner is convinced it was worth it. "We learned two things," he says. "One is the amount of research and detail that you have to go through in order to make a decision. Secondly, it gave us an opportunity to benchmark our own processes. We were able to conclude that we're doing a very good job." **CIO**

Mickey Williamson is a technical journalist based in Warwick, Mass. Her Internet address is qwertygroup@mci-mail.com.

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ORGANIC RESTRUCTURING

Recreating the enterprise does not have to be a violent act. Author Margaret J. Wheatley believes that organizations are dynamic entities that need free-flowing information to thrive. Reengineering, she says, misses the point.

BY LEIGH BUCHANAN

IN THEORY, "COMMAND" AND "CONTROL" are the two most reviled words in the corporate vocabulary. In practice, while most forward-thinking managers have accepted the need to dispense with the former, few are ready to entirely abandon the latter. That attitude is hardly surprising: After all, by definition, the alternative to control is chaos.

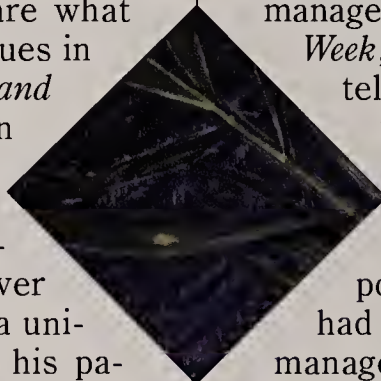
Great, says Margaret J. Wheatley.

Wheatley, a principal and co-founder of Kellner-Rogers & Wheatley Inc. in Provo, Utah, is a firm believer in chaos, disorder and unpredictability. Those characteristics, while anathema to the average manager, are what keep organizations vital, she argues in her best-selling book, *Leadership and the New Science*. Disorder can give birth to higher order; fluctuations are the source of creativity. Her philosophy is not unlike that of the neurologist Oliver Sacks, who finds intimations of a universal order in the disorder of his patients' psyches. Things fall apart, but the center can still hold as long as the company is organized around principles found in nature.

Drawing on lessons from quantum physics, molecular biology and chaos theory, Wheatley makes a case for dynamic, ever-changing companies that organize themselves around natural processes. After you accept that organizations are living things, she argues, the next step is to recognize that information is what

feeds them. "For the system to remain alive, for the universe to move onward, information must be continually generated," Wheatley writes. "If there is nothing new, or if the information that exists merely confirms what is, then the result will be death." Organizations must understand that they cannot manage information; rather, they must let information manage them. And because the greatest generator of information is chaos, the duty of the CIO becomes one of throwing open the doors to the royal treasury and showering its wealth upon the masses.

Leadership and the New Science, named best management book of 1992 by *Industry Week*, is not for the unimaginative or intellectually lazy. Anyone unwilling to wrestle with fractals and Jungian archetypes or intolerant of the occasional new-ageism ("Love in organizations, then, is the most potent source of power we have") had better consult more-traditional management tomes or wait for the Cliff's Notes. But Wheatley's philosophy has been embraced by such decidedly non-out-there organizations as American Express, AT&T and the Office of the Army Chief of Staff. At a time when more and more reengineering efforts are failing to take hold, the concept of a simpler, more organic approach to change has obvious appeal. Recently, Senior Editor Leigh Buchanan asked Wheatley what her approach has to offer that reengineering does not.





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CIO: The term "reengineering" reinforces the notion of a man-made order and is therefore, I assume, antithetical to the kind of organizational model you propose. If the mechanistic model of the organization is a failed model, is reengineering a failed solution?

WHEATLEY: We already have evidence of that. I have chosen to pick on reengineering not just because of a semantic difference with it. What I see increasingly is the failure and the frustration—enormous investments in technology, enormous investments in consulting fees and some very bitterly disappointed clients. What we're doing is more of the same—just faster, with more determination, more grit, more harshness—thinking this will yield different results.

We've also been trying to do it by force. The language associated with reengineering is very harsh: It actually talks about doing violence to the organization. If you read any interview with a senior executive who is in charge of reengineering, they know that they're the bad guy or the most hated person in the organization. And I begin to wonder, why are we moving backward to this kind of desperate-hero approach to organizational change?

CIO: You talk instead about "deengineering," which, as I understand it, is a kinder, gentler way of letting the organization find its own shape as opposed to dictating it from above.

WHEATLEY: Deengineering for me is understanding that what we need to change is the way we change. It's a question of do we think of organizations as inert machines that we can engineer or do we think of them as

living, dynamic systems, collections of forces that can work together or not? Once you switch the metaphor from machine to dynamic force, you get into a whole new territory, and the question becomes how do you create the conditions by which this living system will continuously change, will continuously adapt, will seek itself, will seek to thrive in its environment?

CIO: And you perceive the same kind of shift occurring in how we see information?

WHEATLEY: Exactly. In the mechanistic model, we thought of information as bits, as transmissions that could be measured. We didn't think about the whole side of information that is concerned with its impact, what it does, how it requires changes in people's thinking or how it will restructure work. We've been very interested in getting accurate information and transmitting it and figuring out how to format it, and for years we got away with that. But now we're starting to understand that the heart of the technology is information, a



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very dynamic, unpredictable force that reshapes people, relationships, ideas, work. The CIO's task now is to think in terms of information as a dynamic rather than as a thing.

CIO: *That's pretty tough on the CIO. I would think it's much harder to manage a living creature than an inert thing.*

WHEATLEY: That's true; you cannot command or control a living thing successfully for very long. You can't command and control what people will do with information. If you are in the business of creating access to information, you should be making sure that it's easy to use, that it's available to many more people than you ever dreamed possible. You should be moving away from structuring access to opening access, from thinking you know what people need to know to understanding, in deep humility, that no one knows what everyone needs to know. We just need to put the information out there, and people will make sense of it as the work demands of them.

CIO: *But if you have everyone out there acting autonomously and in the moment, isn't it difficult to maintain any kind of coherent strategy?*

WHEATLEY: The idea that there can be a coherent strategy set beforehand, that we can predict the future or attempt to determine precise outcomes, is one of the fundamental things we have to get away from. So, the challenge is to create some boundary conditions around people's behavior but let go of how they actually do things. A great example is the U.S. Army. They now have the technology to move information down to the lowest level so that it is possible for the men inside tanks to have as much information about the battle going on as their commanders have. The general staff knows from experience that when they give information down to the smallest units, they get the most effective responses, so they don't seem to need as much traditional command and control. But

once you give that information to tank crews, and they start working for their own safety and their own victory, how are they going to respond to commands outside of the tank situation? And what happens to battle strategy? Is it in the head of the commander, or do you just train crews and have them figure it out for themselves as the situation demands?

CIO: *OK, even assuming that information is an absolute good, doesn't the greater flow of information also mean a greater flow of disinformation and distracting information and conflicting information?*

WHEATLEY: Intuitively, that sounds like what would happen. But I think

with all that dissemination going on left, right and center?

WHEATLEY: That's one of the things you can't control. One of the metaphors that I've been playing with recently is from parallel-processing computers. In order to create thinking abilities in these machines, in the earliest versions you had minimally 64,000 processors operating in tandem. The belief is that if you can process information fast and in many different places, you will go through enormous numbers of trials and errors, but you'll go through them faster. One senior executive said to me, "We just want to make our mistakes faster." So, this notion I have of an information-rich organization, multidirectional infor-

"The belief is that if you can process information fast and in many different places, you will go through enormous numbers of trials and errors, but you'll go through them faster."

the greatest source of disinformation is the lack of real information. People, when they are starved for real information, get very focused on making up information. So we get rumors and gossip and disinformation and misinterpretations. My experience is that as people work in an information-rich environment where they feel respected, trusted and connected to the organization, they bring their adult skills of discernment to the task. Once people feel they are connected to an organization, to what they are trying to accomplish, once they feel they are being treated as adults by this organization, they act more responsibly with this information because they have a stake in making sure they know what's real.

CIO: *But isn't valuable information likely to get misdirected or overlooked*

mation flows, all of that stuff, is not about getting it right immediately but about creating the conditions in which more people are engaged in thinking actively and more people will make mistakes that have fewer consequences. This challenges our notions about avoiding waste and redundancy, all of the ways we had tried to make organizations efficient machines.

CIO: *You also talk about the need to seek out information that is ambiguous, complex and of no immediate value. How can an organization profit from that?*

WHEATLEY: There's a whole category of information that we ignored for years called positive feedback—slight disturbances that when amplified can distort and disrupt a system. It's the process by which a

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small piece of information gets into a system and the system sees whether this information is important. Most of what we look for in organizations has been regulatory or negative feedback, in which we're only looking for information that will tell us if we're off our standard. All of this other information that is not contained in our regulatory mind-set—information that could be interesting, but we don't know until we look at it because it's new and different—all of that information historically has been ignored, both in terms of what we look to measure and in the kinds of information-processing systems we've built.



CIO: *Can you give me an example where a company derived some benefit from looking at that type of information?*

WHEATLEY: There's a Du Pont plant in Belle, W. Va.—an aged chemical facility and plant that manufactures 12 to 15 chemicals, some of which are very toxic. Of course, they're regulated to death by the EPA and

injury to a worker, even if it occurs hundreds of miles from the plant; they look at any information that's available about systems failing even though the EPA has said that that information isn't relevant.

At a weekly safety meeting, you'll hear things reported like the overflow of a radiator that created an-

learn something that prevents a much bigger problem later on.

CIO: *And has their safety record improved?*

WHEATLEY: Yes indeed. They enjoyed zero injuries for well over a year, and their productivity ratings shot up more than 40 percent. And they are currently setting the national standard on how chemical companies should operate in their communities around worst-case scenarios. They are creating information fairs at shopping malls to educate the community and bring them into the conversation. It's a strategy that has terrified most chemical-plant managers. It just happens that [the manager at this plant] has learned that information freely shared and openly discussed is his best ally in being part of the community.

CIO: *So, what do you say to organizations that have already embarked on reengineering efforts? Do they have to change course completely, or can they modify their efforts to embrace aspects of this new approach?*

WHEATLEY: Obviously, I want to say

"If you're in the middle of a reengineering process, you need to look at who you're including and who you're excluding and to move the process much more deeply into the organization and be prepared to go with recommendations that come out of a much broader participative base."

OSHA and other government agencies. But in their effort to create a 100 percent safe environment, they began asking employees to report all variances—everything that went wrong, even though they were still operating well within EPA levels of safety. They look for a pinprick leak in a pipe; they look for the slightest

tifreeze emissions in a parking lot. If you look at their paperwork, they have a much higher stack of things going wrong, which is not a position you normally want to put yourself in when you're government-regulated. But they have found over time that if they're willing to look at [these kinds of things], they may

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Information Fertility

Information is unique as a resource because of its capacity to generate itself. It's the solar energy of organization—inexhaustible, with new progeny emerging every time information meets up with itself. As long as there are senders and receivers linked together in a context, fertility abounds. All that is needed is freedom of circulation to guarantee new births. In fact, the greatest generator of information is chaos, where so much spawning

of information goes on that researchers feel obliged to monitor every moment of the system's activity lest they miss something.

Of course, this is exactly what we fear. We have no desire to let information roam about, to let it procreate promiscuously where it will, to create chaos. Our management task is to enforce control, to keep information contained, to pass it down in such a way that no procreation occurs. Information chastity belts are a central management function.



The last thing we need is information running loose in our organizations. And there are good reasons for our stern, puritanical attitudes toward information: Misplaced information seems to have created enough horror stories to justify our frequent witch hunts.

From Leadership and the New Science: Learning about Organization from an Orderly Universe, by Margaret J. Wheatley, Berrett-Koehler Publishers (San Francisco), 1992, \$24.95.

that they can modify it. Some of them can't; some of them are just bitterly disappointed at spending \$130 million and not feeling they got anything useful. But I would say that if you're in the middle of a reengineering process, you need to look at who you're including and who you're excluding and to move the process much more deeply into the organization and be prepared to go with recommendations that come out of a much broader participative base. We need to ask: Who gets to do the work? And who gets to make the decisions? Most reengineering efforts start with teams and experts, but the rest of the organization contributes little. Basically, they wait to see what's going to be imposed. If you've got 17,000 employees, having a team of 170 people is no big deal.

I believe that we need to look more closely at where reengineering has actually worked. The people I've talked to, no matter how they started, no matter what model they had, gradually got into a much more inclusive process where more and more people were involved with the redesign, not just trained how to work in this new organization. The ones I know about that have suc-

ceeded have had a much more intimate involvement of many more people in the organization trying to figure out what on earth they are going to become.

"I want information technology designers to think of themselves as purveyors of a resource that we cannot live without."

CIO: And how can the IS organization help?

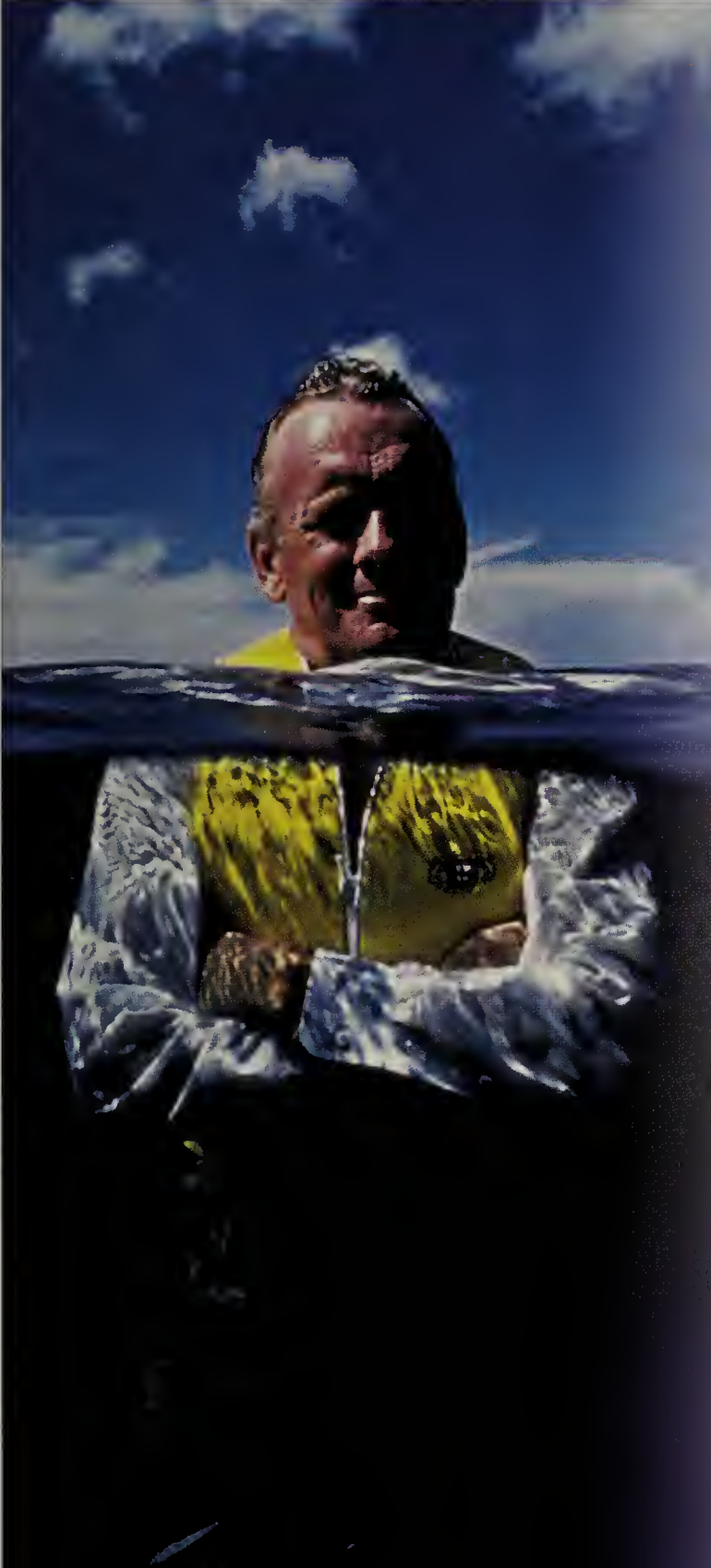
WHEATLEY: I want IT designers to think of themselves as purveyors of a resource that we cannot live without. And as they begin to reconsider information access, I want them to think of themselves as creating products for the masses. As IT executives move from an emphasis on the "T" to the "I," what they're going to come up against are their assumptions about human nature and

[their companies'] workforces in particular. How smart are they? How committed are they? How much can they be trusted? And if they're not willing to rethink those assumptions, then their response will continue to be antiquated.

CIO: Most business books leap right to the answers while *Leadership and the New Science* spends a great deal of time forcing readers to rethink the question—that is, "What is the nature of their organizations?" It's also very personal—almost revelatory—and somewhat daunting in its discussions of natural science. Is all that difficult for businesspeople to accept?

WHEATLEY: Some people say to me, "You make my head hurt—and I love that feeling. I haven't been engaged in just thinking in a while." Some people find that it reinforces what they have been feeling but didn't feel free to say or couldn't find language to express. And then some people think it's a pile of nonsense. I've gotten some criticism from people saying, "I just cannot understand a word of this book." And I think that's fine. We're all in different places, but we're all trying to make sense of our world. **CIO**

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Cautionary Notes

Lotus Notes is on everyone's lips and many companies' buy lists, but the golden rule of IT management still prevails: Look carefully before you leap

BY TRACY MAYOR

In the 16 months or so since Lotus Development Corp. released version 3 of its Notes groupware and began distributing the program through a wider array of channels, the air has been filled with reports of happy Notes campers. In the trade press, at industry forums and online, company after company testifies to Notes' powers in information distribution, workgroup collaboration and enterprise communication.

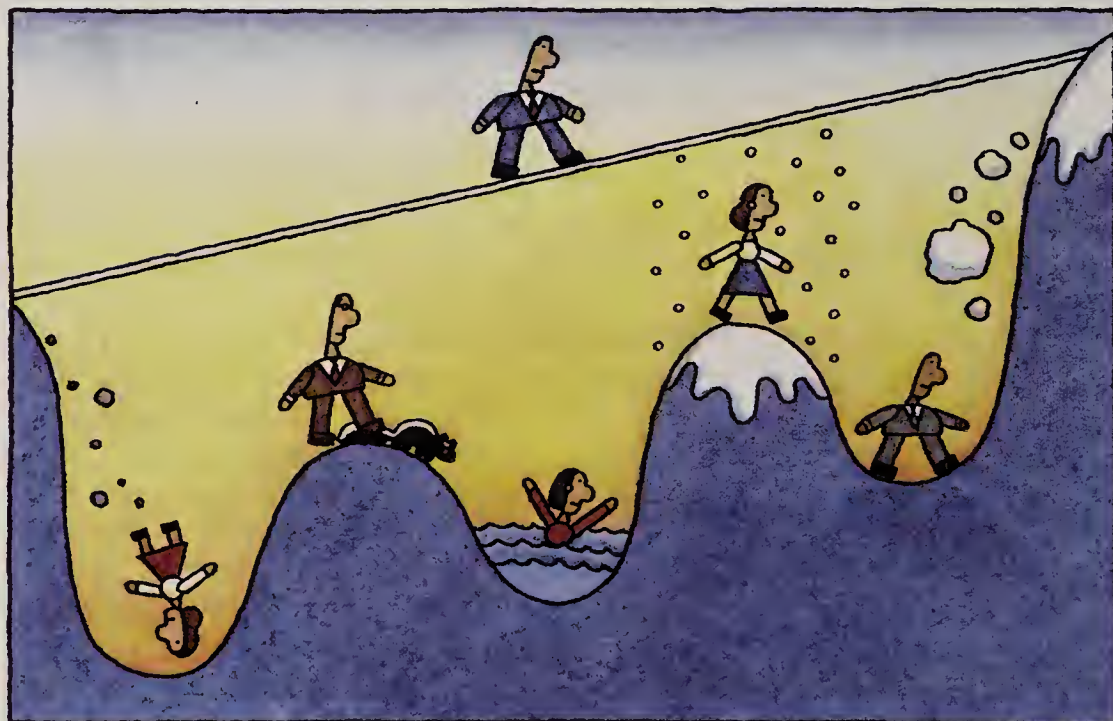
But as more organizations explore Notes, other stories have begun circulating as well. Arthur Andersen, a large-scale Notes business consultancy and a worldwide user of the product, was brought to its knees when an administrator unwittingly erased the company's central Name and Address Book, effectively blocking all employees from entering Notes. A major banking site in New York was rumored to be considering scrapping Notes entirely but instead scaled back the scope of its Notes project at the last minute. Online messages in various Notes forums carry titles such as "Consultant's

Dream & Administrator's Nightmare," and at LotusSphere '93, the Lotus-sponsored gathering of the Notes faithful, someone raised the specter of an all-too-easy way for malicious users to send devastating mail bombs via the software.

Is this the beginning of a bona fide Notes backlash? Probably not. To an unusual degree, Notes customers are a loyal group that remains committed to the software's vision, even when the reality proves more difficult than they anticipated. However, IT managers, consultants and analysts agree: The stories serve as a reminder that Lotus Notes isn't and probably will never be an easy buy. Companies that run into trouble tend to have made one or more classic mistakes during the evaluation and startup phases; studying those stumbles, the experts say, is an excellent way for those considering adopting Notes to ensure that their own roll-outs run more smoothly.

Mistake 1: Buying Notes for the wrong reason—or no reason at all. Ironically, the benefit managers most often cite as Notes' crowning achievement—its ability to effect sweeping change in the corporate hierarchy—is only very rarely a legitimate reason to introduce the product in the first place. Shoot for vague ideals like better communication or a flattened hierarchy, and you run the risk of underutilizing Notes and buying what one consultant calls "the most expensive E-mail system per seat."

Says John Bartlett, Notes product manager at Lotus in Cambridge, Mass., "We suggest that people have an identified need in mind. They need to identify one or two critical applications." Particularly in the planning stages, "it's a mistake to think [of Notes as] E-mail with some extra stuff thrown in." The most



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popular applications include sales-force automation, customer service and product development, he says.

It's now common knowledge that Notes isn't the best choice for relational-database jobs, number crunching or transaction-based applications such as order processing. Rather, Notes excels when used to collect, transport and disseminate document-based information, especially when you need to include remote workers or customers. And while it was originally developed primarily for idea exchange and workgroup collaboration, some sites aren't using it for that purpose. "If you're all sitting in the same office, collaboration is still happening the old way—around the water cooler," observes Sally Blanning DeJean, a partner in the Newton, Mass., Notes consultancy DeJean & Clemens and editor of *The Notes Report*, a Boston-based newsletter.

Many companies use the groupware more for document-tracking types of applications. "Some of the most successful apps I've seen are workflow/routing sorts of programs rather than a collaboration where you post and respond to ideas," Blanning DeJean says.

Mistake 2: Starting too big...or too small. Many companies ease into Notes gradually with a pilot application or two, but experts unanimously agree that they should never be something "light" or "fun." An interoffice gossip database may demonstrate how discussions operate in Notes, but it does irreparable damage by sending the message that Notes is nonessential. Give users information they can't get anywhere else—information that they must have to do their jobs—and they'll be sold on Notes from the outset.

Beyond that, opinions are many on how to manage that crucial first application. Jeff Held, a partner in the technology services practices department at Ernst & Young in New York, suggests bringing in users by giving them something "for free" to start with—for example, publishing essential information in a database that requires no input from view-

ers—before trying more-complicated discussion or workflow projects.

Mark Johnson, CEO of MFJ International, a New York Notes consultancy, agrees. "We've found that discussion databases are among the worst ways to start using Notes."

"Training is the best place to overbudget. Budget twice as much as you think you're going to need."

—Mark Johnson

The best first application should solve a problem "that's been nagging people for years," and it should "give more than it takes," he advises.

But Ellen Hongo, manager of information service technologies at Gemini Consulting Inc., a worldwide management consulting firm based in Morristown, N.J., warns that companies should resist the urge to sugarcoat the initial Notes application. Starting off too slowly may wind up selling the system short, she says: "If you pick an easy pilot, you're in for a big surprise later."

Mistake 3: Expecting a plug-and-play environment. Notes newcomers should take care not to underestimate the amount of work it takes to get it up and running, experts advise. "Notes runs on a PC, so people assume it's like NetWare, but...it's not something that runs itself," says Ernst & Young's Held. "That's not a design flaw; Notes is simply a very complicated program."

Like many other large, geographically dispersed Notes installations, Ernst & Young found that one key to a smooth-running operation is to carefully control the deployment of Notes servers. The firm's rule of thumb: Install servers only in locations where an administrator can be dedicated to overseeing them. That way, you minimize the downtime that can occur should a critical Notes application fail.

Opinion is divided in the industry over how well Notes can handle a very high volume of users, particularly when they use the system simultaneously. Some analysts, such as those at MFJ, say they've experienced no performance problems, even with very large systems; others, including *The Notes Report's* Blanning DeJean and Ernst & Young's Held, contend that Notes has yet to prove its mettle at these volumes.

Managers and analysts are unanimous in their hope that this and other administrative issues will be addressed by the introduction next year of a public Notes network service from AT&T. Using a version of the software that is currently being reworked by Lotus, this network will enable large organizations to outsource some or all of their Notes databases to AT&T, thereby removing the need to handle the administrative responsibilities themselves. AT&T, meanwhile, will maintain Unix servers and very high-speed dedicated links to improve performance.

In the meantime, many customers have already turned to third parties for help in another area—programming. The consensus on the application-development tools built into release 3 is, "Nice try, but keep working at it." Specifically, designers want an easier way to extend Notes on the front end with customized user interfaces and on the back end with links into relational databases and other legacy systems.

"From the user standpoint, Lotus Notes is a superb product, but from a developer's standpoint, the macro language is difficult," says George Hoffmann, a biodata specialist and software developer at Sandoz Agro Inc., a manufacturer of farm chemicals in Des Plaines, Ill. Hoffmann, like a growing number of Notes developers, champions the use of VB/Link for Lotus Notes from Brainstorm Technologies Inc., of Cambridge, Mass. VB/Link serves as a bridge between Notes and Microsoft Corp.'s Visual Basic programming language, tapping many features

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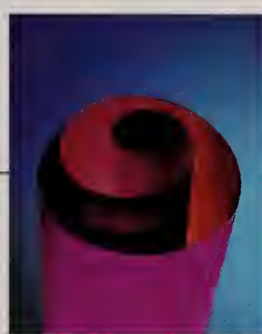
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formerly accessible only at the Notes application programming interface (API) level and bringing them to Visual Basic, which most agree is much easier to use.

Other companies have turned to products such as Quality Decision Management Inc.'s QAW Business Builder, which adds workflow functionality and enhanced mail capabilities to Notes databases and applications.

Lotus itself has also been working on the problem—it recently released ViP, its long-awaited Windows-based application-development environment for Notes and other Lotus applications. The toolkit includes the LotusScript programming language, data-access tools that extend Notes to relational databases and other data repositories, and GUI development tools for customers who want to create alternate interfaces for their Notes applications.

Platform independence has been one of Notes' strongest selling points from the outset, but some clients—notably, PC clients—are decidedly more equal than others. "The Macintosh is definitely a second cousin; Notes is a Windows product that just happens to run on the Mac," says Gordon Stone, CIO at Gemini Consulting. "There are no APIs, no background replication;...as a client, it's a minimal client." Nevertheless, Gemini has 800 consultants running Notes on Macintoshes worldwide and remains committed to the product, even though Macintosh improvements aren't expected before the middle of next year.

Most Notes customers take an equally philosophical approach to the software's technical complexity. CACI, an Arlington, Va., technology systems integrator, maintains a complicated, multiplatform networked environment, supplements Notes' capabilities with QAW Business Builder and is considering ViP. But despite all this, "the thing that's been...remarkable is that Notes can handle the diversity at all," says Steve Hunt, vice president for advanced technology. "This isn't a process of saying 'plug it in' and up it

goes. You need to be knowledgeable of the magnitude of what you're trying to do."

Mistake 4: Ignoring the people issues. With so much energy devoted to setup and administration, it's easy for IT managers to forget why they invested in Notes in the first place—their users. No. 1 on experts' lists of musts: training, and lots of it.

"Most companies with a technology department have plenty of brainpower [to tackle] administration is-

"Be prepared for the magnitude of the demand."

—John Gustafson

sues; it falls apart when users don't accept the system," observes MFJ's Johnson. It's up to management to ensure that users thoroughly understand Windows, Notes and the firm's specific Notes applications—even if that means instigating a three-tiered training system, he says. "Training is the best place to overbudget. Budget twice as much as you think you're going to need."

That requires convincing upper management that the training is necessary. "MIS managers know that products need support, but Lotus Notes is being sold to managers in other areas," says Sandoz Agro's Hoffmann.

Once a pilot application is up and running, managers should strive to strike a balance between giving end users the freedom to explore and maintaining some level of control to prevent the proliferation of unnecessary or redundant databases. "People are going to want to customize their own information; you have to expect that," says Patrick Joyce, consulting Notes administrator for a major East Coast utility and vice president at Team Technologies Inc., a Cary, N.C., Notes consultancy. Joyce and other managers suggest that companies establish and distribute applica-

tion-development standards for Notes databases to encourage companywide consistency.

Finally, in its most visionary incarnations, Notes can have a sweeping, democratizing effect on companies and may stir up office politics. "The minute you start flattening the organization, you're changing the political nature of the institution," says Scott McCready, a principal at Framingham, Mass., market researcher IDC/Avante (which is owned by the same company as CIO). "Often the people who have the most invested in the status quo are senior management." McCready's solution: "Sell senior management first."

Mistake 5: Underplanning for success. The corporate ramifications of a successful Notes rollout can be traumatic. Companies that have done their homework will have created truly mission-critical applications, but success leaves them that much more vulnerable to system crashes and other unexpected downtime. Support and training personnel may be overwhelmed, users who haven't yet been given Notes may be suffering from technology envy, and unchecked experimentation can spin out of control.

"Be prepared for the magnitude of the demand," advises John Gustafson, manager of Lotus Notes support for 3M in St. Paul, Minn. "We were aware of [Notes'] limitations and shortcomings, but we were quite surprised at how many things people were willing to overlook to get at [its] flexibility." Gustafson's message to other managers: "It's going to take some human resources to oversee all of these things. Be prepared to either redeploy resources or hire them to get Notes up and running."

Is the overall process worth the work? CACI's Hunt sums up the feelings of many other IT managers. "ROI on Notes has been greater than we expected. It wasn't without challenges, but if it were, it wouldn't be any fun." 

Tracy Mayor is a freelance writer and editor based in Beverly, Mass.

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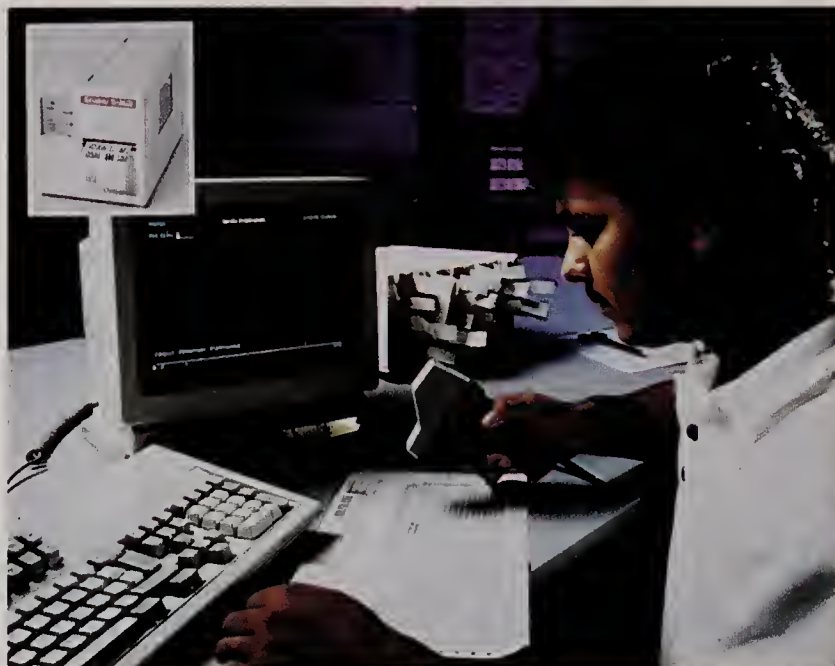
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Shipping Out

Suppliers to many types of companies are being pressed to improve their customer service. A new distribution-management system from Avery Dennison's Soabar Systems Division enables suppliers to comply with retailers' shipment requirements, thereby reducing the time—and labor—it takes to get merchandise to retailers. The system, which is customized to meet particular companies' needs, consists of Manhattan Associates' PkMS software and Dennison's hardware, labels and support services.

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Remote Possibilities

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Everyware 900 provides high-speed dial-in access to an enterprise LAN for up to 1,000 users at remote sites. Using ISDN-Primary Rate Interface telephone lines, it gives users full remote access to network resources, allowing them to run data-intensive applications including graphics, medical imaging, CAD/CAM and multimedia, for example, remotely. Network managers, meanwhile, gain flexibility and control to manage access efficiently; the product sup-

ports advanced bridging and Internet Protocol routing, centralized administration, extensive security, 4-to-1 data compression, SNMP remote management and multilink protocol support. Companies that have very large demand for access—with thousands of remote users—can combine multiple access servers in modular fashion to accommodate that demand. The access server provides such security features as caller authentication for up to 5,000 addresses as well as automatic call-back for 1,000 remote sites.

Priced at \$4,990—much less than current alternatives, the company claims—the Everyware 900 access server supports all leading network operating systems and works with all leading desktop systems. It is slated to be available this month. For more information, call 800 967-6651.

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If the demise of the Sears catalog marked the end of one era, the introduction of electronic shopping marks the birth of another. One eager midwife to the new generation is MediaShare Corp., of Carlsbad, Calif., which recently announced a product that automates the process of creating custom-built multimedia catalogs for organizations' sales forces.

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Users can either browse through the catalog or jump directly to a specific product using a text search. They can also add their own annotations in pop-up windows or copy information for use in other applications. Salespeople can set "electronic bookmarks" to flag items they think might be of interest to particular customers. In addition, PBCatalog's hypertext links to related information and products encourage cross-selling and up-selling.

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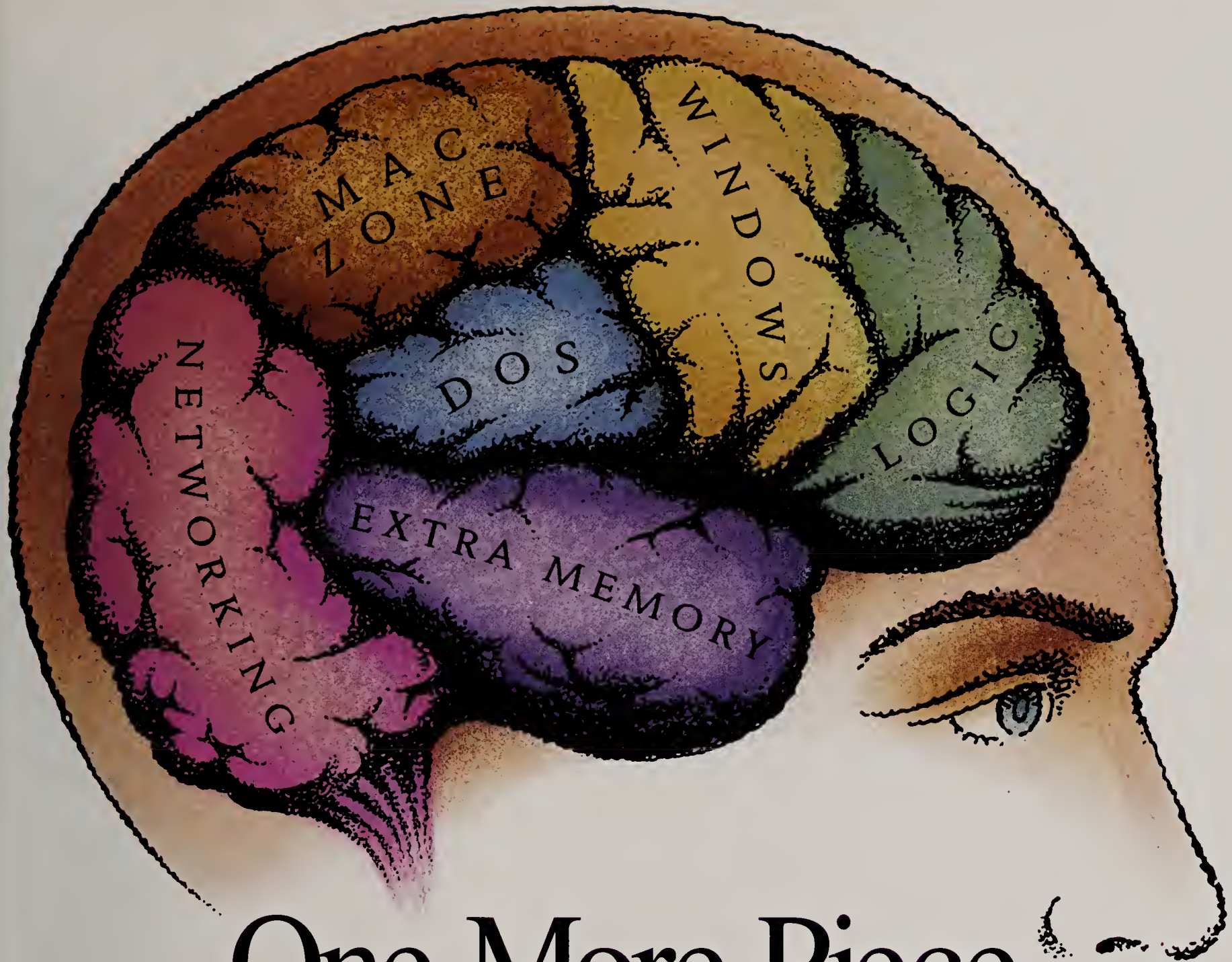
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Closing Encounters

Monthly financial closes were a protracted nightmare at this wireless-communications company. Consolidating the reporting function and standardizing processes among divisions has turned that around.

For companies with various lines of business, operations such as product development and customer service are usually better left to the business units. Some functions, however, are more efficiently run through a central system. AirTouch Communications Inc., a wireless-communications firm spun off in April from telecommunications giant Pacific Telesis Corp., is putting the finishing touches on a financial reengineering project that has standardized 11 sets of books into four processes and opened the financial system for use by other departments.

Previously, the San Francisco company hammered out its monthly financial reports based on a slew of disparate ledgers and accounting systems. Getting the 10 business units (which offer cellular, paging and vehicle-locator systems and services) to report numbers in a uniform manner was difficult, according to Director of Information Systems Mike Sorensen, and it took nine days to close the books.

So in June 1991, Sorensen's group, working with the corporate accounting department and Andersen Business Services Consulting, began examining the disparate LANs, databases and accounting packages then in use. The project team met weekly for two-hour joint-application-design sessions. IS

drove the project; accounting had the right of final thumbs-up or thumbs-down during development.

Getting the busy accountants to participate wasn't always easy. "The accounting people wanted the new system, but they worked 10 hours a day, and putting in a new system is another full-time job," Sorensen says. Offering free lunch helped.

The team members decided to consolidate the financial-reporting function. Now the business units roll up their data and send it to corporate, where it is consolidated using Coda Inc.'s VMS Integrated Accounting System (IAS) running on a Digital VAX over a Novell NetWare LAN. The system maintains 150 general ledgers, 60 of which are in foreign currencies. About 150 users (most of whom are outside the financial department) now have access to all corporate financial data. The level of access is based on users' security profiles.

To produce a consistent financial structure, Sorensen's group created a uniform chart of accounts. The team standardized each division on four uniform processes: accounts payable and receivable, fixed assets, billing/cost recovery and purchasing. Although divisions still report their financials separately, they do so in the same manner.

Sorensen says the system has paid dividends in shorter closing times, reduced training costs and static head count in the accounting department. "Previ-

ously, closing the monthly books took about nine days..., and the accounting staff had to work weekends to make that happen," he says. Corporate accounting now closes its books in two to three days, the cellular group in four and the international group in six.

Although the number of employees at headquarters has increased fourfold since 1991, the accounting staff has remained relatively static. That is partly the result of giving access to financial data to about 120 users outside the accounting department. Business-unit employees can check on expenses or whether a certain vendor has been paid, for instance—information they otherwise would have had to request from accounting.

Sorensen is currently installing IMRS's Hyperion software for online, real-time reporting and analysis. Lotus Notes will be used as a front end to several modules.

As AirTouch moves away from its telecommunications parent and into the intense competition of a deregulated industry, Sorensen says the company's tightly knit financial process gives it an edge. "We can provide financial information on a quicker basis," he says, "so we can be more competitive in our market."

—Carol Hildebrand

VITAL STATISTICS

Organization: AirTouch Communications Inc. (formerly PacTel), San Francisco

Application: Consolidated accounting system

Technologies: Coda Inc.'s IAS client/server financial system running on a Digital Equipment Corp. VAX over a Novell Inc. NetWare LAN; Lotus Development Corp.'s Notes will serve as a front end to select Coda applications; currently installing IMRS's Hyperion reporting and analysis software

Scope: Nearly 150 users, including the approximately 25-member accounting staff

Sponsors: Mohan Gyani, vice president of finance and treasurer; Mike Sorensen, director of IS

Objective: To consolidate disparate independent accounting functions into one standard online process

Payoff: Closing time reduced by several days; accountants' workload eased, enabling the company to keep head count static; training costs reduced



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